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**NAVAL AIR  
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WARMINSTER, PA. 18974

REPORT NO. NADC 73235-30

15 NOVEMBER 1973

NAVAIRDEVLEN GRAPHITE-EPOXY COMPOSITE WING  
FOR BQM-34E; STRESS AND VIBRATION ANALYSIS

FINAL REPORT

AIRTASK NO. A320000/001B/4F41422206  
WORK UNIT HJ 202

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

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DEPARTMENT OF THE NAVY  
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A weight saving of 54 percent has been achieved in the in-house design and fabrication of a composite wing for the BQM-34E aerial target vehicle. Design criteria are identical to those of the 5g production metal wing. Results of the stress analyses indicate adequate margins of safety.

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## INTRODUCTION

The Naval Air Development Center (NAVAIRDEVVCEN) has recently completed the design, analysis, fabrication and static testing of a graphite-epoxy composite wing for the unmanned BQM-34E aircraft. A weight saving of 54 percent has been achieved while meeting all static strength and static and dynamic aeroelastic requirements.

The BQM-34E is a high-altitude, supersonic, recoverable aerial target vehicle. The wing has a 9-foot span and an aspect ratio of 2.5. Other dimensions are shown in Figure 1. The main panel of the production design consists of chem-milled stainless steel skins bonded to an aluminum honeycomb core. The outboard panels are made of fiberglass-reinforced plastic. With the exception of the outboard panels, the entire wing is factory-assembled by adhesive bonding and riveting. Its total weight is 157 pounds, about 30 percent of the structural weight of the aircraft.

In the composite wing design, emphasis was placed on reducing the weight and the number of major subassemblies while maintaining the original airfoil shape and planform. The development was initiated under Independent Research (reference (a)) as an in-house effort whose objectives were to exploit the improved material properties of advanced filamentary reinforced composites, to obtain an optimum design with minimum weight and to allow acquisition of service experience on a primary structural component of a high performance vehicle with no risk to human life. The final design, analysis, fabrication and testing of the wing were carried out entirely in-house under reference (b). Following the successful static testing at NAVAIRDEVVCEN, flight testing commenced at the Naval Missile Center (NAVMISCEN), Point Mugu, Ca.

Results of static and flutter analyses of a preliminary wing design have been reported previously in references (c) and (d). The static aeroelastic and flutter analyses and static test of the final design are described and their results presented in references (e) and (f). This report presents the procedure and results of the final stress and vibration analyses and includes the following:

- a. composite and core material characteristics including material stiffness properties and allowable stresses;
- b. descriptions of the wing structure and the finite element model used for the analyses;
- c. results of the stress and vibration analyses;
- d. computation of critical stresses and margins of safety for the skins and core.

## DESIGN CRITERIA

The flight conditions for the composite wing are the same as for the production metal wing, and are described in reference (g), in which the critical flight conditions and the resulting shear, torque and bending loads are presented. The equivalent static test loads are specified in reference (h).

The exposed planform and aerodynamic profile of the composite wing are identical to those of the metal wing. Size and location of fuselage attachment bolts are the same to allow installation of the wing without modification of the fuselage. In addition, the maximum airfoil section depth is limited to 1.62 inches. Finally, to facilitate manufacture, reduce vulnerability to accidental damage, and maintain balance of the laminate, the minimum composite skin thickness has been set at five plies (0.030 in.).

Sufficient stiffness of the wing is required to preclude static and dynamic aeroelastic instabilities throughout the flight envelope. A discussion and analyses of these effects are contained in reference (e).

Stiffness and strength properties of the unidirectional graphite-epoxy material and of the several laminate constructions used in the wing, as well as those of the core materials are listed in Table I. Since, in general, advanced composites exhibit little static yielding, strength calculations for the laminated skins are based solely on ultimate stresses. For the unmanned aircraft, ultimate loads are 25 percent over limit.

## DESCRIPTION OF WING STRUCTURE

The principal features of the composite wing construction are shown in Figure 2. Laminated graphite-epoxy skins, varying in thickness from 5 to 30 plies (.030 to .180 in.), are adhesive bonded to the aluminum honeycomb core. The laminate construction varies over the planform. The number of plies of each orientation is varied to meet local stiffness and strength requirements and to maintain balanced construction. In the center section and in the outboard two-thirds of the exposed span, the core density is 4.5 lb./ft.<sup>3</sup>. Inboard, where shear loads are higher, and particularly in the vicinity of the attachments, higher density core materials (6.1, 8.1 and 23.0 lb./ft.<sup>3</sup>) are used. The leading edge is a molded solid section of chopped fiber covered by a four-ply, ±45° laminated skin.

To close out the center section and the fuselage interface, and to distribute the attachment bolt reaction loads, channel sections of ±45° construction are placed in the core. Attachment bolt loads are transferred to the adjoining structure by means of titanium flanges bonded

inside the skins and spool-shaped aluminum fittings inserted into the core. Across the aft end of the center section, where the bending moment is highest and the attachment bolt load is most critical, the graphite-epoxy laminated skins are replaced by titanium plates, step-lap bonded to the adjoining laminates. Finally to accommodate electrical wiring for the wing tip antenna, a fiberglass conduit is enclosed within the core between the forward edge of the center section and the wing tip, where mounting holes for the tip antenna pod are provided.

#### FINITE ELEMENT MODELLING AND ANALYSIS

A diagram of the finite element model assembled for analysis using NASTRAN is shown in Figure 3. Triangular and quadrilateral orthotropic plate elements are used to represent the skins and core. The stiffness (bending and transverse shear) and mass properties of each element are derived from the local laminate construction, number of plies, core properties, and the airfoil thickness. The remaining structural elements - leading edge, conduit, channel section ribs and tip antenna pod - are represented by bar elements. In order to accurately simulate the mass distribution of the wing for the vibration analysis, additional lumped masses are placed along the leading edge and tip. A listing of the NASTRAN bulk data deck is reproduced in Appendix A.

For the static analysis, the test loads from reference (h) were distributed over the finite element model as concentrated forces applied to the grid points. To simulate the boundary condition for the critical load condition (5g symmetric pull-up), vertical displacements were constrained for the grid points located at the fuselage attachment bolts, and rotations about the longitudinal axis were constrained along the aircraft center line. The results of the static analysis, including the deflected shape, deflections at selected points, and reaction loads are shown in Figure 4 and Tables II and III. A complete listing of the NASTRAN output data is reproduced in Appendix B.

To provide vibration frequency and mode data for the modal flutter analysis described in reference (e), the real eigenvalue analysis option available in NASTRAN was used. Both symmetric and antisymmetric modes were computed by altering the constraints at the fuselage centerline. Similar frequencies, generalized masses and generalized stiffness resulted for the two cases. These data are listed in Table IV for the first five modes of each case. The mode shapes of the first three symmetric modes are shown in Figures 5, 6 and 7, and of the first three antisymmetric modes in Figures 8, 9 and 10. A complete listing of the NASTRAN output data for the symmetric modes is reproduced in Appendix C.

## STRESS ANALYSIS

To determine the ply stresses in the graphite-epoxy skins, element stresses computed by NASTRAN are first transformed into the local laminate coordinates. The stresses in laminate coordinates are shown for two streamwise sections in Figures 11 and 12. Laminate stiffness properties are used to calculate the resulting strains, which are subsequently transformed for each of the ply orientations of the local laminate construction. Unidirectional material stiffness coefficients are then used to compute the ply stresses. To account for the combined-stress state of the material in determining margins of safety, the interaction formula below is applied:

$$\left(\frac{\sigma_1}{X_1}\right)^2 + \left(\frac{\sigma_2}{X_2}\right)^2 + \left(\frac{\sigma_6}{X_6}\right)^2 - \frac{\sigma_1 \sigma_2}{X_1 X_2} = R_o^2$$

$$\left| \frac{\sigma_i}{X_i} \right| = R_i \quad i=1,2,6 \quad \text{Ult. M.S.} = \frac{1}{1.25 \times R_{\max}} - 1.$$

where  $\sigma_1, \sigma_2, \sigma_6$  are the inplane normal and shear stresses in the ply and  $X_i$  are the allowable stresses. The margin of safety of the element is the lowest of the margins for the individual ply orientations. The critical elements of the finite element model and the stresses and margins of safety resulting from the static analysis are listed in Table V.

Depending upon the ratio of the skin thickness to the section depth ( $0. \leq t/H \leq 0.5$ ) the core shear stress varies from 1.0 to 1.5 times the average shear stress (force/area), but may be conservatively approximated by the relation

$$\tau \leq \frac{1}{H} \left( 1 + 1.15 \frac{t}{H} \right) \times \text{shear force per unit width}$$

To determine the core shear stresses and margins of safety, the element shear forces (per unit width) from NASTRAN and the skin thickness and section depth at the element centroid are used in the formula above. The resulting stresses are transformed into the ribbon and transverse directions of the core, and the strength criterion below is applied:

$$\frac{\tau_L}{x_L} + \left( \frac{\tau_w}{x_w} \right)^{1.575} = R''$$

$$\text{Ult. M. S.} = \frac{1}{1.25 \times R''} - 1.$$

where the subscripts L and W refer to the ribbon and transverse directions respectively. Shear stresses and margins of safety for the critical elements of the model are shown in Table VI.

The minimum ultimate margins of safety calculated for skins and core are 0.14 and 0.32 respectively. Therefore, the wing is considered safe for flight.

CONCLUSIONS

1. Based on the static aerodynamic loads prescribed, adequate margins of safety have been provided for the skins and core of the graphite-epoxy composite wing designed and fabricated for the BQM-34E target vehicle.
2. Static and dynamic aeroelastic (flutter) analyses, reviewed in reference (e), indicate that the stiffness and mass distribution of the composite wing are sufficient to avoid any instabilities throughout the flight envelope.

REFERENCES

- (a) Independent Research R011-01-01, Work Unit ME-9-02, Structural Research Program
- (b) AIRTASK No. A320000/001B/4F41422206, Work Unit HJ 202
- (c) Neu, T. F.: Graphite-Epoxy Composite Wing for BQM-34E; Design Criteria and Analysis. NAVAIRDEVCE Report No. AM-7023, 21 October 1970.
- (d) Somoroff, A. R.: Graphite-Epoxy Composite Wing for BQM-34E; Flutter and Stress Analysis. NAVAIRDEVCE Report No. AM-7024, 28 September 1970.
- (e) Somoroff, A. R. and Rubin, H.: NAVAIRDEVCE Graphite-Epoxy Composite Wing for BQM-34E: Aeroelastic Analysis. NAVAIRDEVCE Report No. 73233-30 of 12 November 1973.
- (f) Minecci, J. and Libeskind, M.: NAVAIRDEVCE Graphite-Epoxy Composite Wing for BQM-34E: Static Test Results. NAVAIRDEVCE Report No. 73244-30 of 3 December 1973.
- (g) Krzyzanowski, A. and Lambert, C. G.: Wing Structural Analysis Report for BQM-34E Supersonic Aerial Target. Ryan Aeronaualtical Company Report No. TRA 16642-12, 6 January 1971.
- (h) Thompson, R. W.: Static Test Program for XBQM-34E Supersonic Aerial Target. Ryan Aeroanautical Company Report No. TRA 16642-4, 2 January 1967.

TABLE I

(a) Composite Material and Laminate Properties

Laminate Construction*				Stiffness Coefficients psi x 10 <sup>6</sup>			
L	M	N	$\alpha$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$Q_{66}$
1	0	0	-	22.12	0.386	1.21	0.60
1	0	4	45°	9.07	3.99	5.30	3.94
2	0	4	45°	10.93	3.39	4.65	3.70
4	0	6	45°	11.86	3.09	4.32	3.40
8	0	2	45°	17.43	1.29	2.34	1.60
2	0	4	22½°	16.88	1.89	1.70	2.20

\*L = No. of 0° plies; M = No. of 90° plies; N = No. of  $\pm\alpha$  plies.

Unidirectional material allowable ultimate stresses:

$$X_1 = 81.0 \text{ ksi} \quad X_2 = 3.6 \text{ ksi} \quad X_6 = 4.05 \text{ ksi}$$

based on average results of specimen tests reduced by 55%: 20% for statistical variation; 20% for possible required repair; and 15% for environmental degradation.

(b) Honeycomb Core Properties

Density, lb./ft. <sup>3</sup>	Shear Modulus, ksi		Shear Strength, psi	
	Long.	Transv.	Long.	Transv.
4.5	70	28	350	205
6.1	102	38	525	305
8.1	143	51	740	440

TABLE II

STATIC DEFLECTION AT SELECTED POINTS

<u>GRID PT.</u>	<u>DEFLECTION (IN.)</u>
1	0.01
6	0.87
10	5.13
11	-0.01
18	1.11
22	5.41
35	-0.05
42	1.64
46	5.98
59	-0.10
66	2.15
70	6.51
81	-0.03
85	1.91
90	7.16

TABLE III

(a) Attachment Bolt Loads

<u>Grid Pt.</u>	<u>Load (lb.)</u>
13	- 331.2
25	- 277.0
37	106.7
49	2163.5
61	<u>3204.7</u>
TOTAL	4866.7

(b) Centerline Bending Moment

<u>Grid Pt.</u>	<u>Moment (in.-lb.)</u>
11	4129.4
23	12770.5
35	25466.2
47	28630.0
59	14849.9
101	<u>18499.0</u>
TOTAL	104345.0

TABLE IV  
VIBRATION MODE DATA

MODE NO.	FREQUENCY (HZ)	GENERALIZED MASS (lb.-in.-sec <sup>2</sup> )	GENERALIZED STIFFNESS (lb.-in.)
<b>(a) Symmetric</b>			
1	20.2	.00476	76.5
2	69.3	.00281	532.5
3	85.6	.00250	724.7
4	135.1	.00344	2479.2
5	143.4	.00160	1298.8
<b>(b) Antisymmetric</b>			
1	20.6	.00464	77.4
2	71.5	.00266	535.7
3	85.9	.00241	702.9
4	138.6	.00381	2892.3
5	144.7	.00206	1703.3

TABLE V  
LAMINATE STRESS DATA AT LIMIT LOAD

El. No.	Laminate Stresses, psi			Crit. Ply Orient.	Stresses in Critical Ply, psi			Ult. M.S.
	$\sigma_x$	$\sigma_y$	$\gamma_{xy}$		$\sigma_1$	$\sigma_2$	$\sigma_6$	
52	22228	2290	-2906	0°	46826	-379	-513	.23
53	22614	2567	-4084	0°	47277	-311	-721	.22
54	22442	2098	-2967	0°	47604	-450	-524	.19
55	20732	1636	-3500	0°	44440	-511	-618	.23
56	20558	1264	-1974	0°	44615	-619	-348	.22
57	21406	3254	-5277	0°	49415	-267	-856	.17
73	23369	2933	-4899	0°	48424	-233	-865	.20
74	23681	2951	-3808	0°	49103	-243	-672	.21
75	23793	2669	-4762	0°	49789	-337	-841	.14
76	23329	2571	-3262	0°	48888	-345	-576	.19
77	22371	2105	-4044	0°	47433	-444	-714	.18
78	19743	2503	-2368	0°	46473	-397	-384	.25
79	21514	3554	-5030	0°	49154	-183	-816	.20

TABLE VI

## CORE SHEAR STRESS DATA AT LIMIT LOAD

El. No.	Core Density lb./ft. <sup>3</sup>	Shear Stresses, psi		Ult. M.S.
		Ribbon Dir.	Transverse	
51	4.5	83.	47.	1.40
52	4.5	102.	28.	1.38
68	6.1	99.	157.	0.49
69	8.1	284.	169.	0.32
70	6.1	164.	46.	1.20
73	4.5	110.	33.	1.16
74	4.5	113.	18.	1.33
75	4.5	111.	21.	1.33
92	6.1	167.	27.	1.35
700	6.1	173.	94.	0.65
900	8.1	206.	116.	0.99

AIRFOIL: NACA 65-003  
(MODIFIED) LINEAR TAPER  
FROM APPROX. 68C TO  
FINITE THICKNESS  
TRAILING EDGE

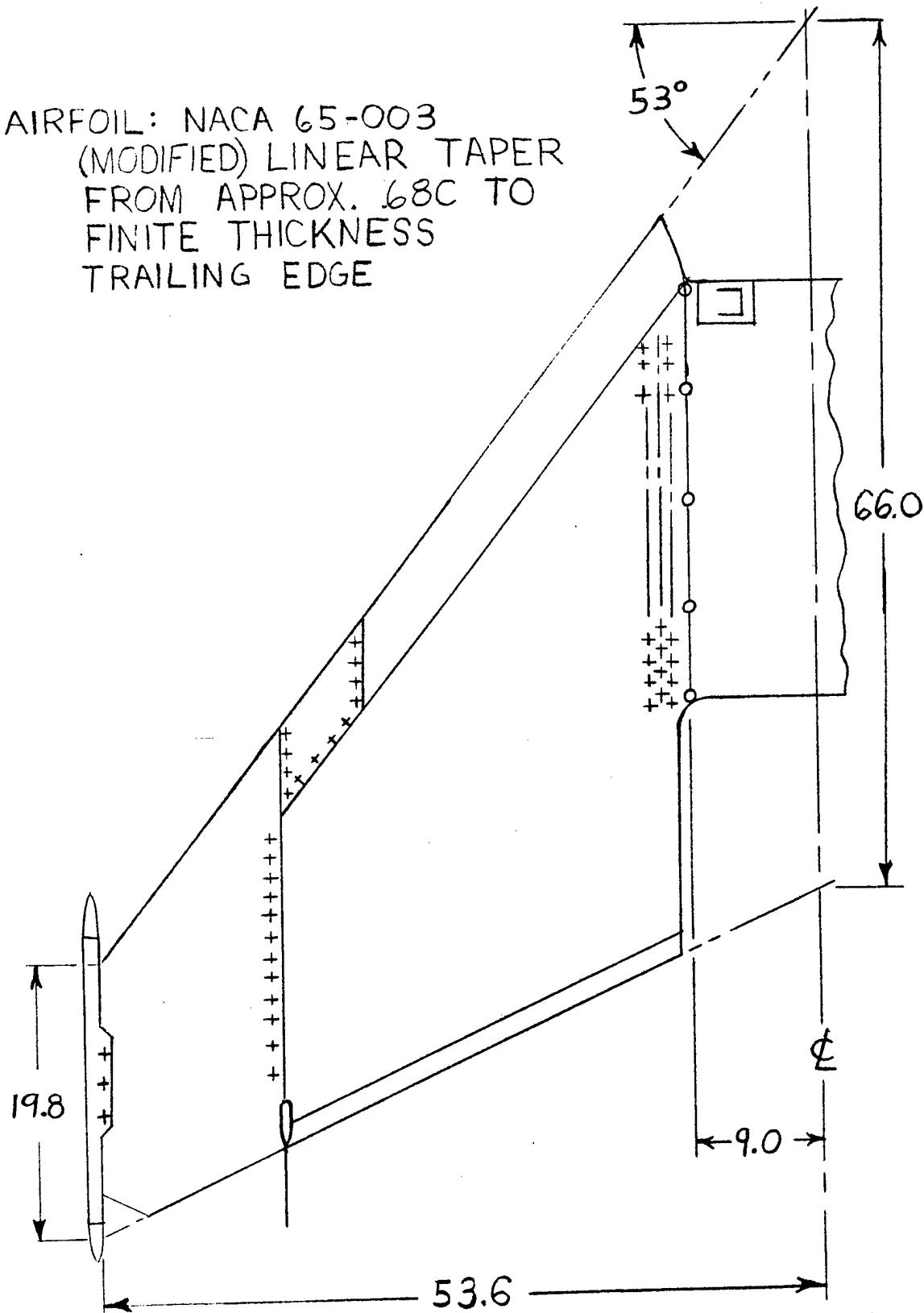


FIGURE 1. BQM-34E METAL WING PLANFORM

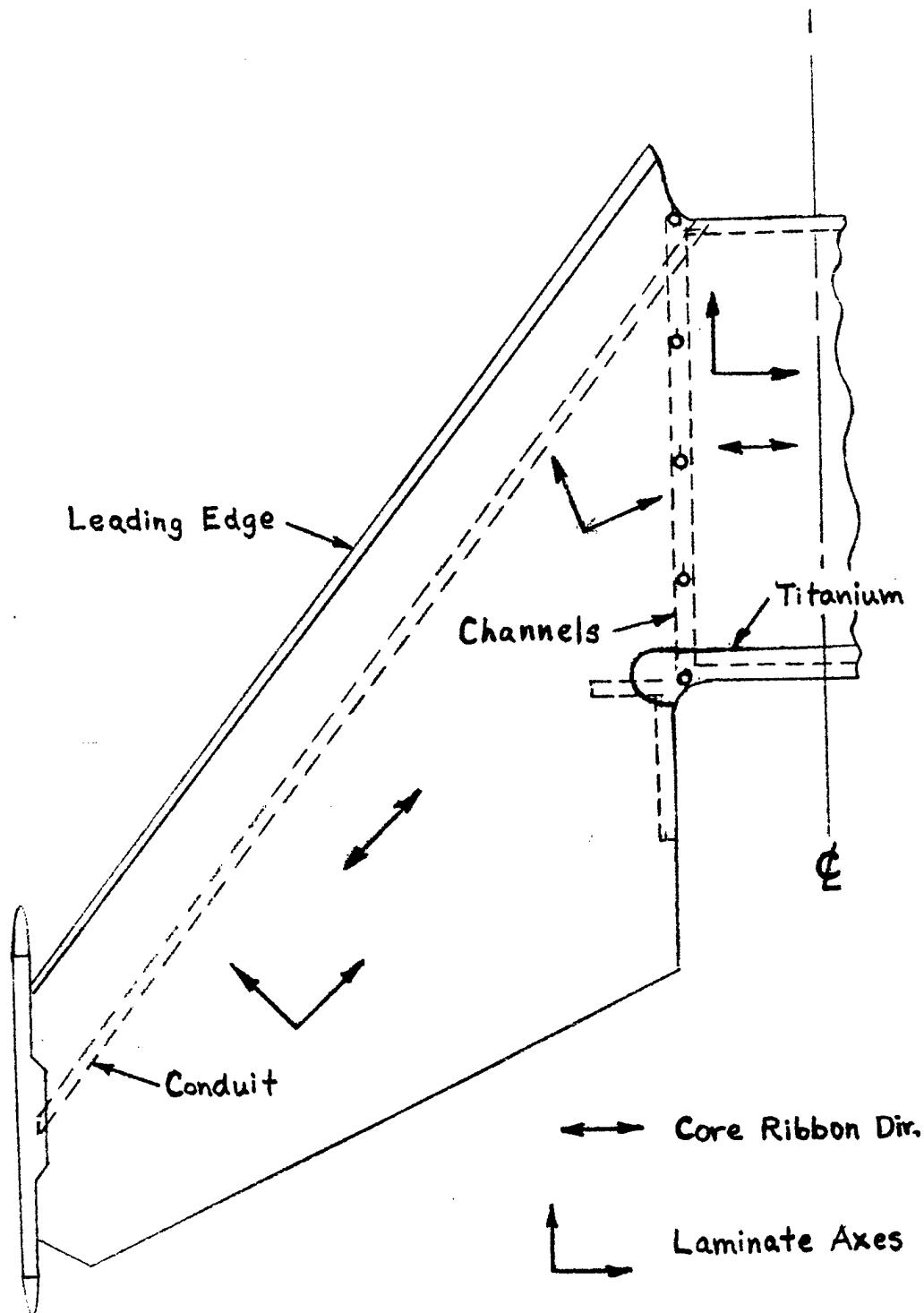


FIGURE 2. COMPOSITE WING CONSTRUCTION

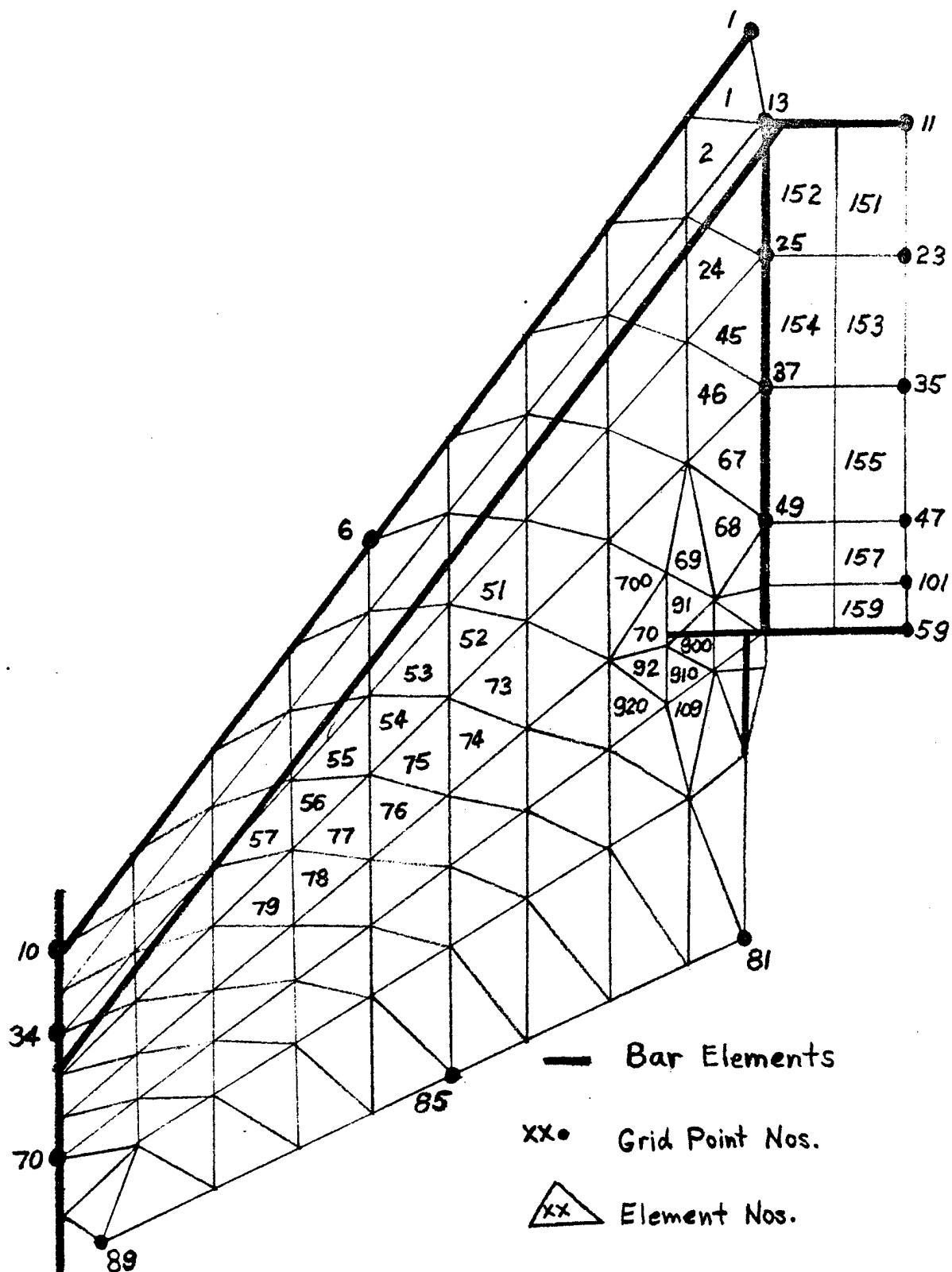


FIGURE 3. NASTRAN FINITE ELEMENT MODEL

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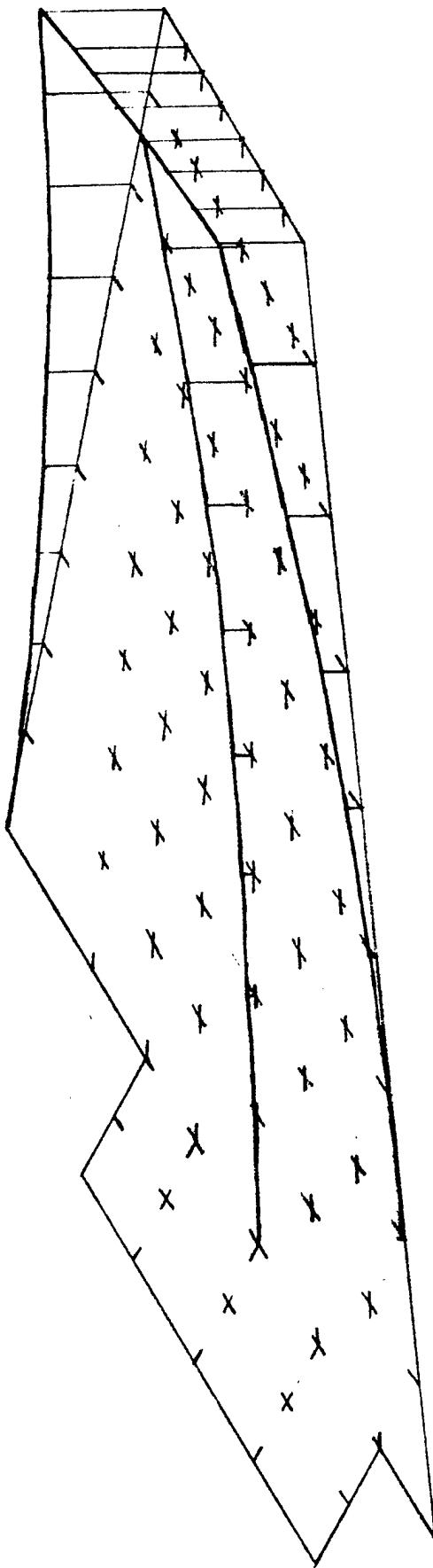


FIGURE 4. STATIC DEFLECTED SHAPE

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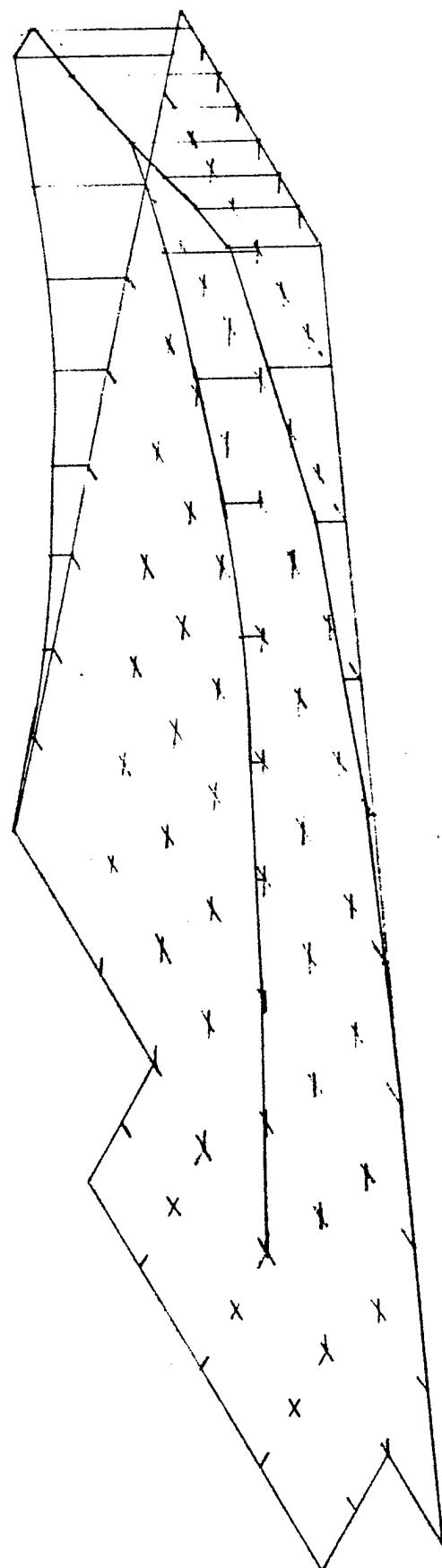


FIGURE 5. FIRST SYMMETRIC MODE, 20.2 Hz

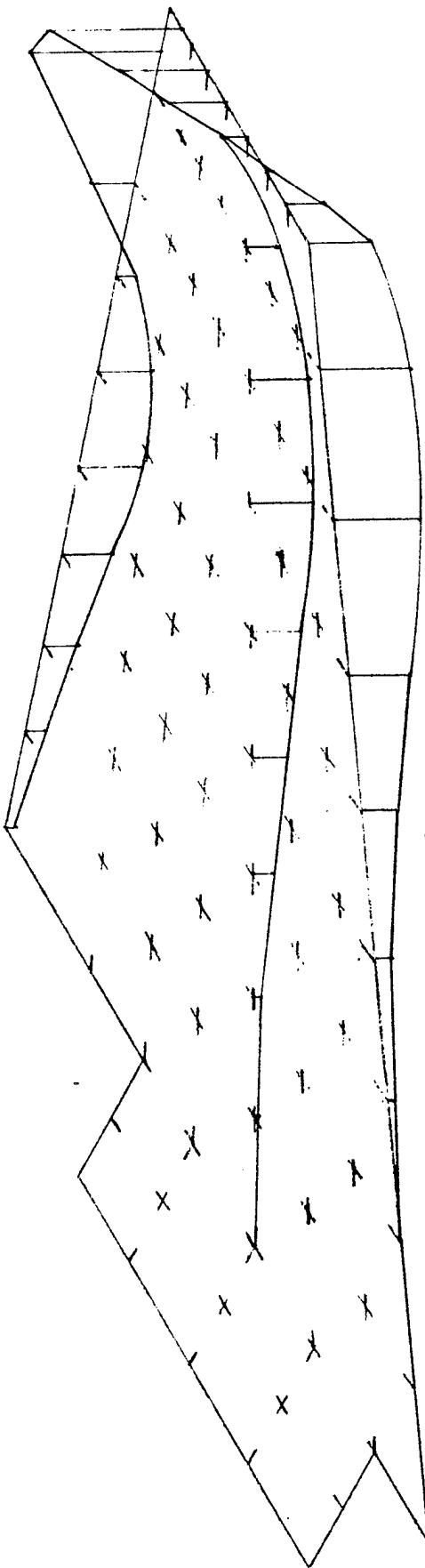


FIGURE 6. SECOND SYMMETRIC MODE, 69.3 Hz

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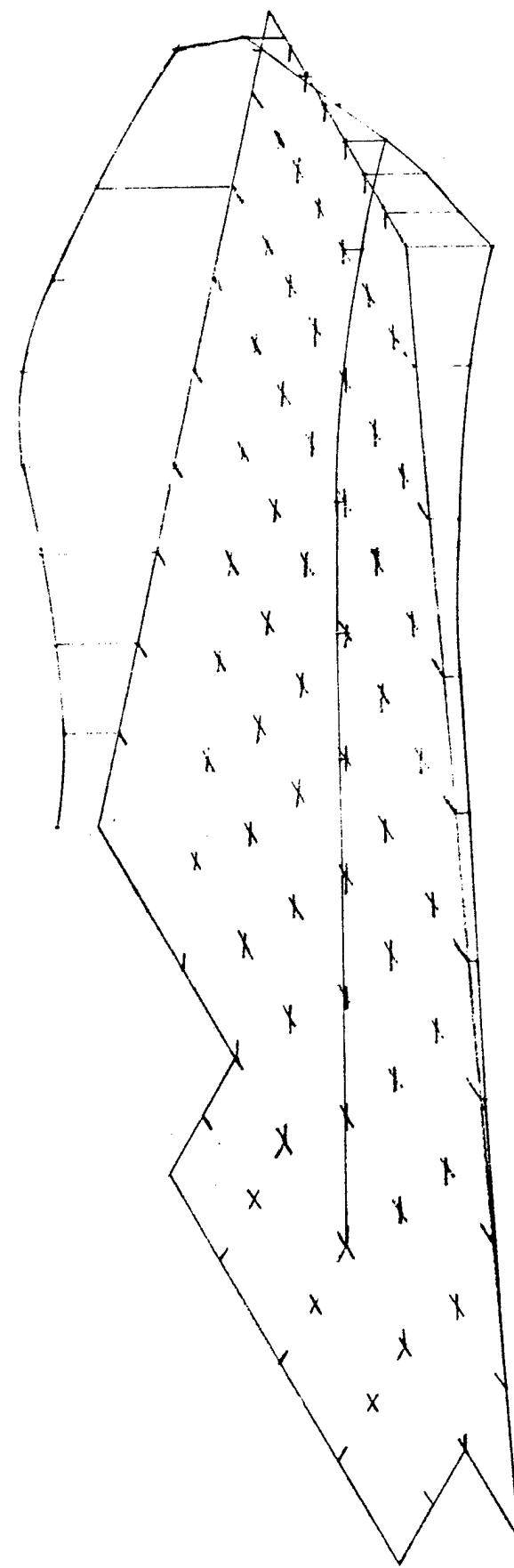


FIGURE 7. THIRD SYMMETRIC MODE, 85.6 Hz

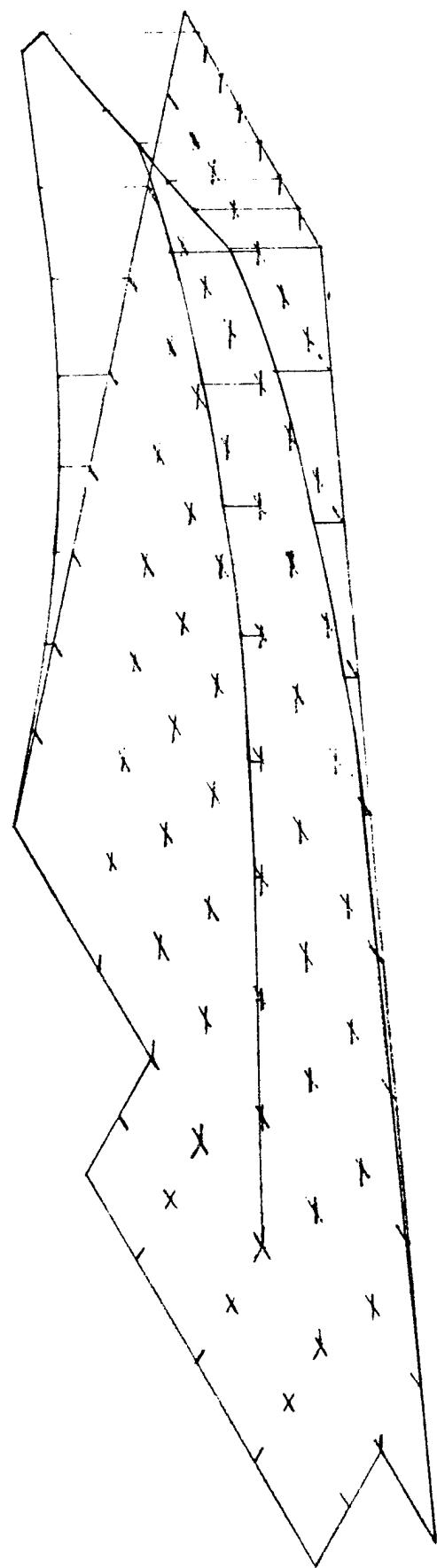


FIGURE 8. FIRST ANISYMETRIC MODE, 20.6 HZ

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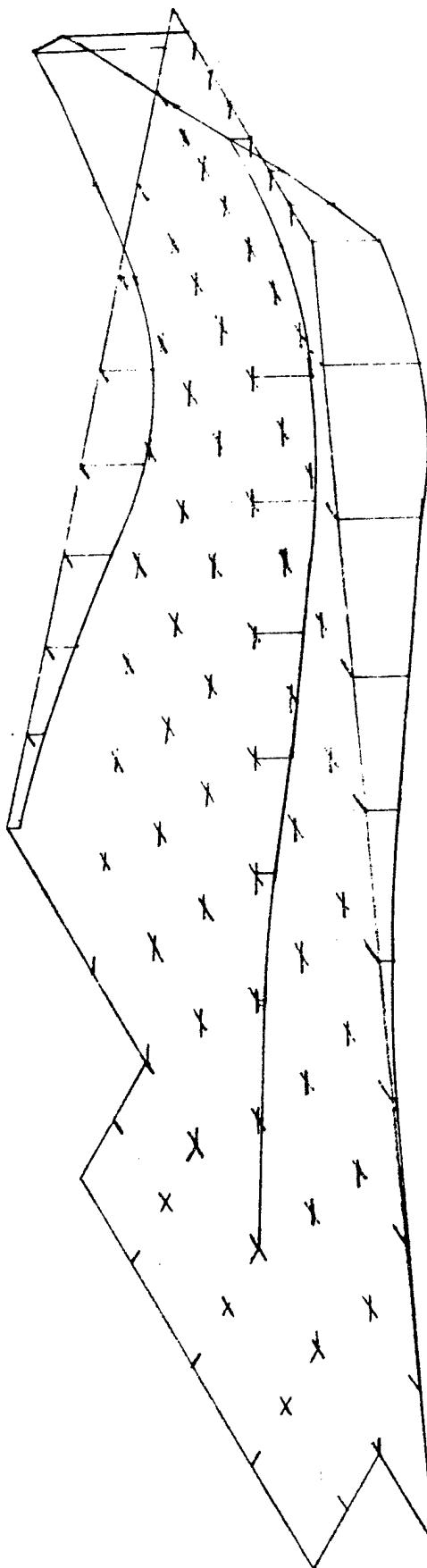


FIGURE 9. SECOND ANTSYMMETRIC MODE, 71.5 HZ

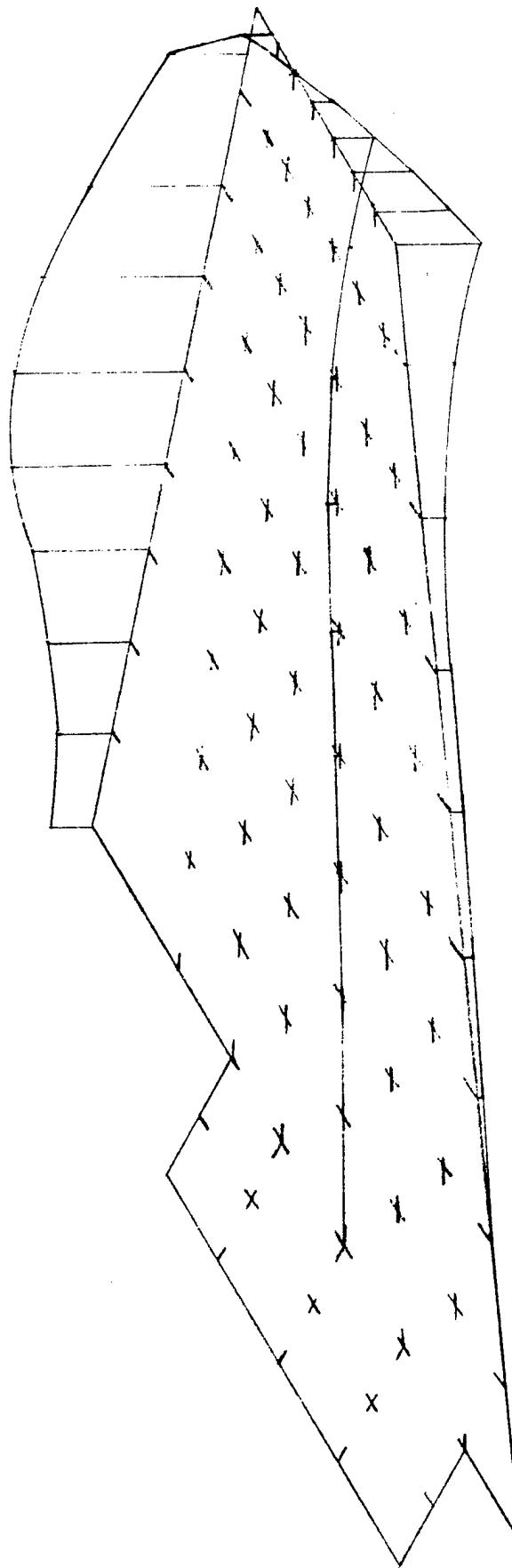


FIGURE 10. THIRD ANTSYMETRIC MODE, 95.9 HZ

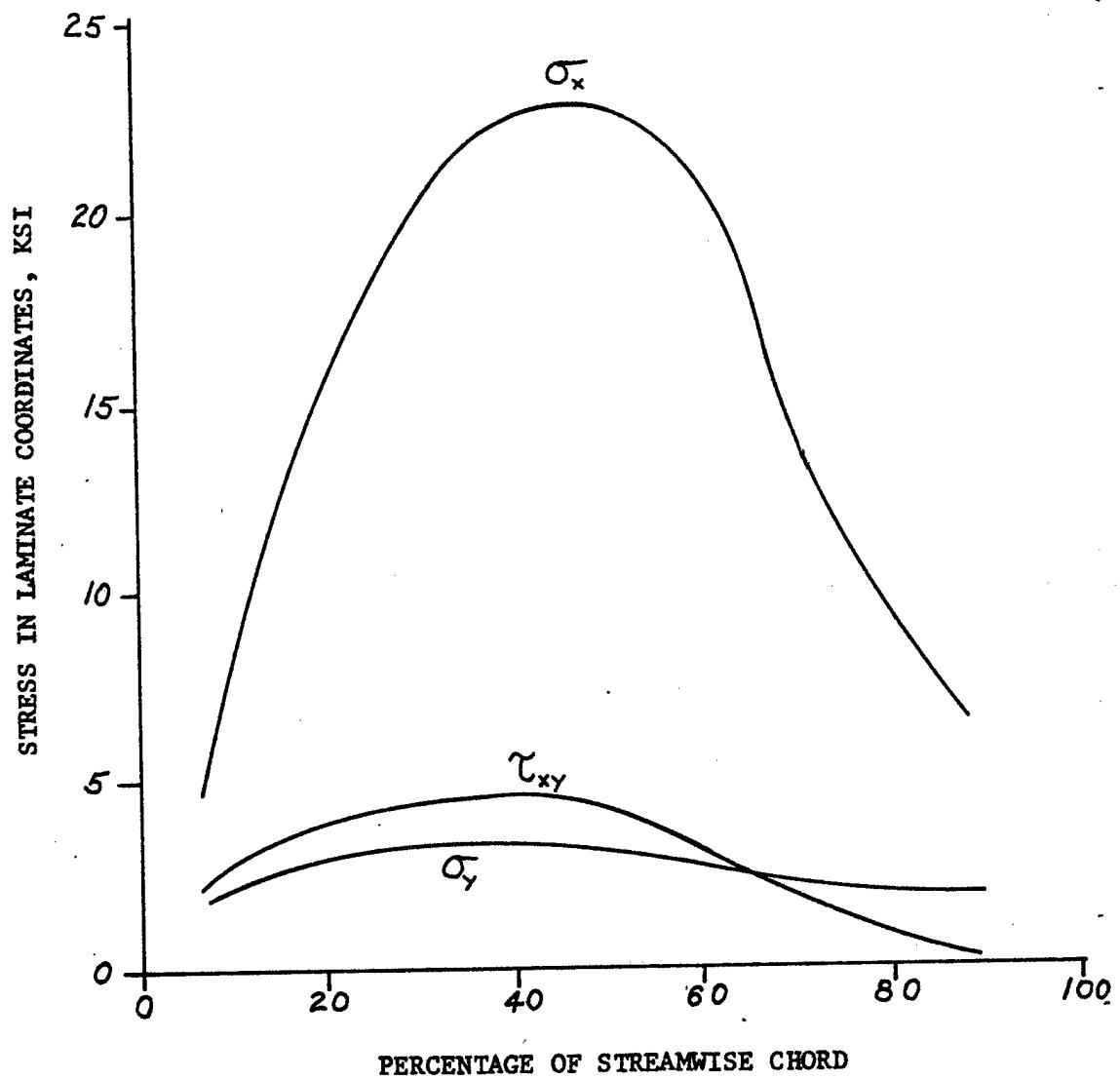


FIGURE 11. LAMINATE STRESSES AT  $Y_W = 24$

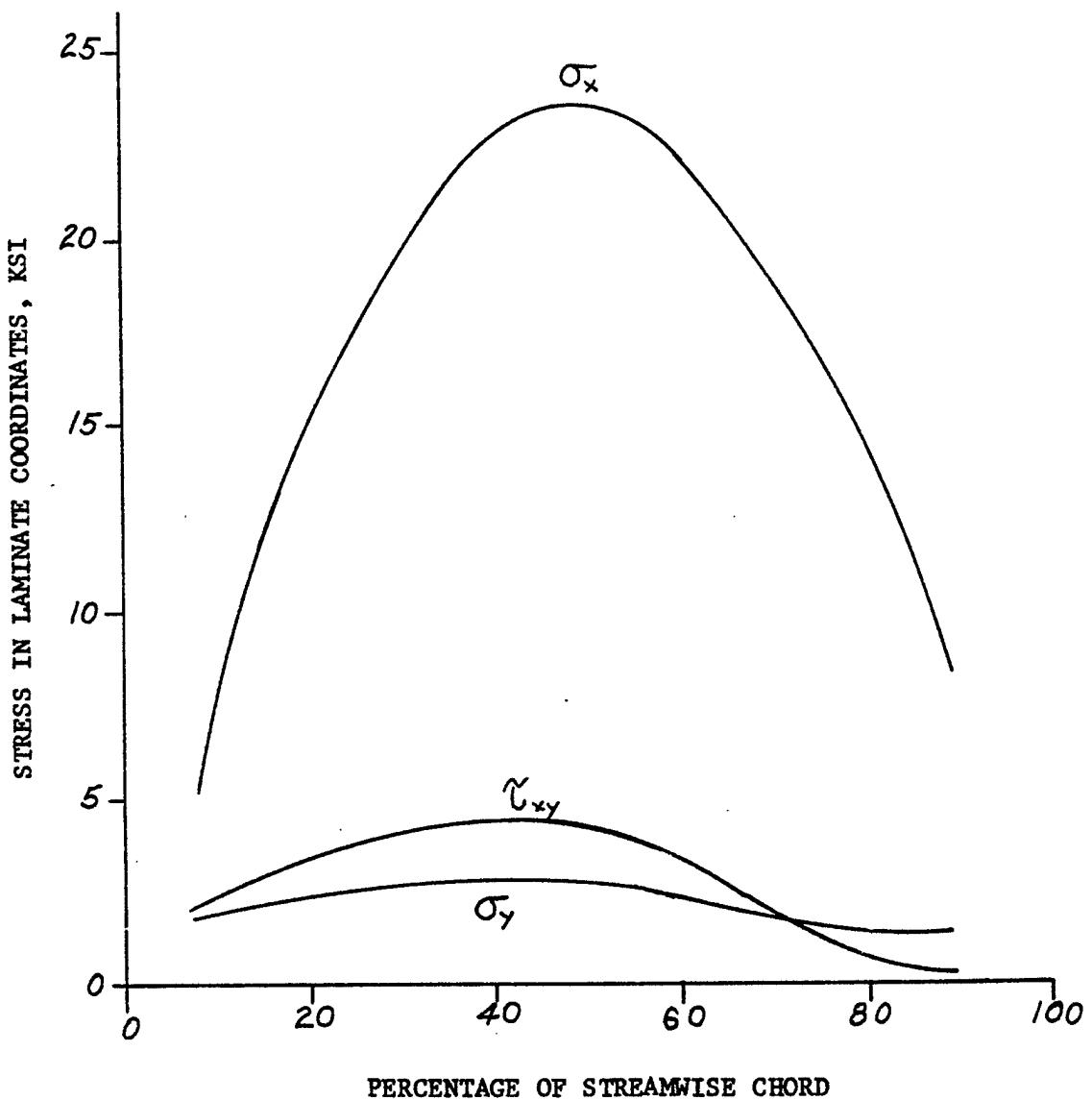


FIGURE 12. LAMINATE STRESSES AT  $y_w = 29$

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**A P P E N D I X   A**

**NASTRAN BULK DATA DECK**

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## SIGNATURE RULK-NAT 4-F.C.H.O.

COUNT	1	2	3	4	5	6	7	8	9	10
1-	CBAP	201	201	-59.	60.	0.	0.	1.	1.	RAP201
2-	+AR201	202	202	0.	0.	0.	0.	0.	0.	RAP202
3-	CRAR	202	202	60	61	0.	0.	1.	1.	RAP202
4-	+AR202	203	203	61	104	0.	0.	1.	1.	RAP203
5-	CRAR	203	203	2.25	0.	0.	2.25	0.	0.	RAP204
6-	+AR203	204	204	11	12	0.	0.	1.	1.	RAP204
7-	CRAR	204	204	0.	0.	0.	0.	0.	0.	RAP204
8-	+AR204	205	205	12	13	0.	0.	0.	0.	RAP205
9-	CRAR	205	205	0.	0.	0.	0.	1.	1.	RAP205
10-	+AR205	211	211	61	1n3	0.	0.	0.	0.	RAP211
11-	CRAR	211	211	0.	0.	0.	0.	1.	1.	RAP211
12-	+AR211	212	212	103	49	0.	0.	0.	0.	RAP212
13-	CRAR	212	212	0.	0.	0.	0.	1.	1.	RAP212
14-	+AP212	213	213	49	37	0.	0.	0.	0.	RAP213
15-	CRAR	213	213	0.	0.	0.	0.	1.	1.	RAP213
16-	+AP213	214	214	37	25	0.	0.	0.	0.	RAP214
17-	CRAR	214	214	0.	0.	0.	0.	1.	1.	RAP214
18-	+AP214	215	215	25	13	0.	0.	0.	0.	RAP215
19-	CRAR	215	215	0.	0.	0.	0.	1.	1.	RAP215
20-	+AP215	221	221	22	34	0.	0.	0.	0.	RAP221
21-	CRAR	221	221	0.	0.	0.	0.	1.	1.	RAP221
22-	+AR221	222	221	34	46	0.	0.	0.	0.	RAP222
23-	CRAR	222	221	0.	0.	0.	0.	1.	1.	RAP222
24-	+AR222	223	221	46	58	0.	0.	0.	0.	RAP223
25-	CRAR	223	221	0.	0.	0.	0.	1.	1.	RAP223
26-	+AP223	224	221	58	70	0.	0.	0.	0.	RAP224
27-	CRAR	224	221	0.	0.	0.	0.	1.	1.	RAP224
28-	+AP224	231	231	111	112	0.	0.	0.	0.	RAP231
29-	CRAR	231	231	0.	0.	0.	0.	1.	1.	RAP231
30-	+AP231	232	231	112	58	0.	0.	0.	0.	RAP232
31-	CRAR	232	231	0.	0.	0.	0.	1.	1.	RAP232
32-	+AP232	233	231	58	46	0.	0.	1.	1.	RAP232
33-	CRAR	233	231	0.	0.	0.	0.	0.	0.	RAP233
34-	+AR232	234	231	46	34	0.	0.	0.	0.	RAP234
35-	CBAR	234	231	0.	0.	0.	0.	1.	1.	RAP234
36-	+AP234	235	231	34	113	0.	0.	1.	1.	RAP235
37-	CRAR	235	231	0.	0.	0.	0.	0.	0.	RAP235
38-	+AP235	236	231	113	114	0.	0.	0.	0.	RAP236
39-	CRAR	236	231	0.	0.	0.	0.	1.	1.	RAP236
40-	+AP236	241	241	0.	0.	0.	0.	0.	0.	RAP241
41-	CRAR	241	241	1	2	0.	0.	1.	1.	RAP241
42-	+AP241	242	242	2	3	0.	0.	0.	0.	RAP242
43-	CRAR	242	242	0.	0.	0.	0.	1.	1.	RAP242
44-	+AP242	243	243	2	4	0.	0.	0.	0.	RAP243
45-	CBAR	243	243	0.	0.	0.	0.	1.	1.	RAP243
46-	+AP243	244	244	4	5	0.	0.	0.	0.	RAP244
47-	CRAR	244	244	0.	0.	0.	0.	1.	1.	RAP244
48-	+AR244	245	245	5	6	0.	0.	0.	0.	RAP245
49-	CBAR	245	245	5	6	0.	0.	1.	1.	RAP245
50-	+AP245	246	246	0.	0.	0.	0.	0.	0.	RAP246

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S-O-R-T-E-D-B-U-L-K-N-A-T-A-F-C-H-A									
CARD	1	0	2	0	3	0	4	0	5
COUNT	CRAR	246	246	6	7	0	0	6	7
51-	+RAP246		0.	0.	0.	0.	0.	0.	1.
52-	R0AP	247	247	7	A	0.	0.	0.	0.
53-	+RAP247		0.	0.	0.	0.	0.	0.	1.
54-	CRAP	248	248	6	9	0	0	0	1.
55-	+RAP248		0.	0.	0.	0.	0.	0.	1.
56-	CBAR	249	249	9	10	0	0	0.	0.
57-	+RAP249		0.	0.	0.	0.	0.	0.	1.
58-	CRAP	253	253	104	72	0	0	0.	0.
59-	+RAP253		225	0.	0.	0.	0.	0.	1.
60-	CRAP	254	254	61	106	0	0	0.	1.
61-	+RAP254		0.	0.	0.	0.	0.	0.	1.
62-	CONM2	1011	13	0	0.	0.	0.	0.	0.
63-	+CONM2		0.	0.	0.	0.	0.	0.	0.
64-	CONM2	1012	26	0	0.	0.	0.	0.	0.
65-	CONM2	1013	27	0	0.	0.	0.	0.	0.
66-	CONM2	1014	28	0	0.	0.	0.	0.	0.
67-	CONM2	1015	29	0	0.	0.	0.	0.	0.
68-	CONM2	1016	30	0	0.	0.	0.	0.	0.
69-	CONM2	1017	31	0	0.	0.	0.	0.	0.
70-	CONM2	1018	44	0	0.	0.	0.	0.	0.
71-	CONM2	1019	45	0	0.	0.	0.	0.	0.
72-	CONM2	1021	34	0	0.	0.	0.	0.	0.
73-	CONM2	1022	58	0	0.	0.	0.	0.	0.
74-	RNRD20	1	0	9.0	0	0.	0.	0.	0.
75-	+FLAX	53.6	81.030	0.0	0.	0.	0.	0.	0.
76-	CONPLT	151	151	23	11	12	24	0	0.
77-	CONPLT	152	152	24	12	13	25	0	0.
78-	CONPLT	153	35	23	24	24	36	0	0.
79-	CONPLT	154	154	36	24	25	37	0	0.
80-	CONPLT	155	155	47	35	36	48	0	0.
81-	CONPLT	156	156	48	36	37	49	0	0.
82-	CONPLT	157	157	101	47	48	102	0	0.
83-	CADPLT	158	158	102	48	49	103	0	0.
84-	CADPLT	159	159	59	101	102	60	0	0.
85-	CONPLT	160	60	102	102	103	61	0	0.
86-	CTPPLT	1	1	1	1	2	0	0	0.
87-	CTPPLT	2	2	2	14	13	0	0	0.
88-	CTPPLT	3	3	14	2	3	0	0	0.
89-	CTPPLT	4	4	3	15	14	0	0	0.
90-	CTPPLT	5	5	15	3	4	0	0	0.
91-	CTPPLT	6	6	4	16	15	0	0	0.
92-	CTPPLT	7	7	16	4	5	0	0	0.
93-	CTPPLT	8	8	5	17	16	0	0	0.
94-	CTPPLT	9	9	17	5	6	0	0	0.
95-	CTPPLT	10	10	6	18	6	17	0	0.
96-	CTPPLT	11	11	12	7	19	14	0	0.
97-	CTPPLT	12	12	7	19	19	14	0	0.
98-	CTPPLT	13	13	10	7	8	10	0	0.
99-	CTPPLT	14	14	8	20	19	0	0	0.
100-	CTPPLT	15	15	20	8	9	0	0	0.

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S-O-R-T E D - B U L K - D A T A - F C H 0										
CARD	1	2	3	4	5	6	7	8	9	10
101-	CTPPLT	16	16	9	21	20	20	20	20	0.0
102-	CTRPLT	17	17	21	9	10	10	10	10	0.0
103-	CTRPLT	18	18	10	22	21	21	21	21	0.0
104-	CTRPLT	23	23	25	13	14	14	14	14	0.0
105-	CTRPLT	24	24	14	26	25	25	25	25	0.0
106-	CTRPLT	25	25	26	14	15	15	15	15	0.0
107-	CTRPLT	26	26	15	27	26	26	26	26	0.0
108-	CTRPLT	27	27	27	15	15	15	15	15	0.0
109-	CTRPLT	28	28	16	28	27	27	27	27	0.0
110-	CTRPLT	29	29	28	16	17	17	17	17	0.0
111-	CTRPLT	30	30	17	29	28	28	28	28	0.0
112-	CTRPLT	31	31	29	17	18	18	18	18	0.0
113-	CTRPLT	32	32	18	30	29	29	29	29	0.0
114-	CTRPLT	33	33	30	18	19	19	19	19	0.0
115-	CTRPLT	34	34	19	31	30	30	30	30	0.0
116-	CTRPLT	35	35	31	19	20	20	20	20	0.0
117-	CTRPLT	36	36	20	32	31	31	31	31	0.0
118-	CTRPLT	37	37	32	20	21	21	21	21	0.0
119-	CTRPLT	38	38	21	33	32	32	32	32	0.0
120-	CTRPLT	39	39	33	21	22	22	22	22	0.0
121-	CTRPLT	40	40	22	34	33	33	33	33	0.0
122-	CTRPLT	45	45	37	25	26	26	26	26	0.0
123-	CTRPLT	46	46	26	38	37	37	37	37	0.0
124-	CTRPLT	47	47	38	26	27	27	27	27	0.0
125-	CTRPLT	48	48	27	39	38	38	38	38	0.0
126-	CTRPLT	49	49	39	27	28	28	28	28	0.0
127-	CTRPLT	50	50	28	40	39	39	39	39	0.0
128-	CTRPLT	51	51	40	28	29	29	29	29	0.0
129-	CTRPLT	52	52	29	41	40	40	40	40	0.0
130-	CTRPLT	53	53	41	29	30	30	30	30	0.0
131-	CTRPLT	54	54	30	42	41	41	41	41	0.0
132-	CTRPLT	55	55	42	30	31	31	31	31	0.0
133-	CTRPLT	56	56	71	43	42	42	42	42	0.0
134-	CTRPLT	57	57	43	31	32	32	32	32	0.0
135-	CTRPLT	58	58	32	44	43	43	43	43	0.0
136-	CTRPLT	59	59	44	32	33	33	33	33	0.0
137-	CTRPLT	60	60	33	45	44	44	44	44	0.0
138-	CTRPLT	61	61	45	33	34	34	34	34	0.0
139-	CTRPLT	62	62	34	46	45	45	45	45	0.0
140-	CTRPLT	67	67	49	37	38	38	38	38	0.0
141-	CTRPLT	68	68	78	50	49	49	49	49	-12.885
142-	CTRPLT	69	69	78	105	50	50	50	50	12.448
143-	CTRPLT	70	70	106	105	51	51	51	51	0.0
144-	CTRPLT	71	71	51	39	40	40	40	40	0.0
145-	CTRPLT	72	72	40	52	51	51	51	51	0.0
146-	CTRPLT	73	73	52	40	41	41	41	41	0.0
147-	CTRPLT	74	74	41	53	52	52	52	52	0.0
148-	CTRPLT	75	75	53	41	42	42	42	42	0.0
149-	CTRPLT	76	76	42	54	53	53	53	53	0.0
150-	CTRPLT	77	77	54	42	42	42	42	42	0.0

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## S-O-R-T-E-D-U-L-K-D-A-T-A-F-C-H-0

CARD	POINT	1	2	3	4	5	6	7	8	9	10
151-	CTPPLT	78	78	43	55	54	54	54	54	54	54
152-	CTRPLT	79	79	55	43	44	44	44	44	44	44
153-	CTEPLT	80	80	44	56	55	55	55	55	55	55
154-	CTEPLT	81	81	56	44	45	45	45	45	45	45
155-	CTPPLT	82	82	45	57	57	57	57	57	57	57
156-	CTPPLT	83	83	57	45	46	46	46	46	46	46
157-	CTEPLT	84	84	46	58	57	57	57	57	57	57
158-	CTPPLT	89	89	103	49	50	50	50	50	50	50
159-	CTEPLT	90	90	50	62	61	61	61	61	61	61
160-	CTEPLT	91	91	105	106	50	50	50	50	50	50
161-	CTRPLT	92	92	107	106	51	51	51	51	51	51
162-	CTRPLT	92	93	63	51	52	52	52	52	52	52
163-	CTRPLT	94	94	52	64	63	63	63	63	63	63
164-	CTRPLT	95	95	64	52	53	53	53	53	53	53
165-	CTEPLT	96	96	53	65	64	64	64	64	64	64
166-	CTPPLT	97	97	65	53	54	54	54	54	54	54
167-	CTRPLT	98	98	54	66	65	65	65	65	65	65
168-	CTRPLT	99	99	66	54	55	55	55	55	55	55
169-	CTRPLT	100	100	55	67	66	66	66	66	66	66
170-	CTRPLT	101	101	67	55	56	56	56	56	56	56
171-	CTRPLT	102	102	56	64	67	67	67	67	67	67
172-	CTEPLT	103	103	68	56	57	57	57	57	57	57
173-	CTEPLT	104	104	67	69	68	68	68	68	68	68
174-	CTRPLT	105	105	69	57	59	59	59	59	59	59
175-	CTRPLT	106	106	58	70	69	69	69	69	69	69
176-	CTPPLT	107	107	104	61	62	62	62	62	62	62
177-	CTRPLT	108	108	62	72	71	71	71	71	71	71
178-	CTRPLT	109	109	107	72	52	52	52	52	52	52
179-	CTRPLT	110	110	63	73	72	72	72	72	72	72
180-	CTPPLT	111	111	73	63	64	64	64	64	64	64
181-	CTEPLT	112	112	64	74	73	73	73	73	73	73
182-	CTRPLT	113	113	74	64	65	65	65	65	65	65
183-	CTRPLT	114	114	65	75	74	74	74	74	74	74
184-	CTPPLT	115	115	75	65	66	66	66	66	66	66
185-	CTRPLT	116	116	66	76	75	75	75	75	75	75
186-	CTRPLT	117	117	76	66	67	67	67	67	67	67
187-	CTPPLT	118	118	67	77	76	76	76	76	76	76
188-	CTRPLT	119	119	77	67	68	68	68	68	68	68
189-	CTRPLT	120	120	68	76	77	77	77	77	77	77
190-	CTEPLT	121	121	78	68	69	69	69	69	69	69
191-	CTRPLT	122	122	69	79	78	78	78	78	78	78
192-	CTRPLT	123	123	79	69	70	70	70	70	70	70
193-	CTEPLT	124	124	70	80	79	79	79	79	79	79
194-	CTPPLT	125	125	81	71	72	72	72	72	72	72
195-	CTRPLT	126	126	72	82	81	81	81	81	81	81
196-	CTPPLT	127	127	82	72	73	73	73	73	73	73
197-	CTRPLT	128	128	72	73	83	83	83	83	83	83
198-	CTRPLT	129	129	83	73	74	74	74	74	74	74
199-	CTRPLT	130	130	74	84	83	83	83	83	83	83
200-	CTRPLT	131	131	96	74	75	75	75	75	75	75

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## S-O-R T-E-D-B-U-L-K-M-A-T-A-F-C-H-N

CARD	1	2	3	4	5	6	7	8	9	10
COUNT	CTPBLT	132	132	75	85	84	0.0	0.0	0.0	0.0
201-	CTPBLT	133	133	85	75	76	0.0	0.0	0.0	0.0
202-	CTPBLT	134	134	76	96	85	0.0	0.0	0.0	0.0
203-	CTPBLT	135	135	86	76	77	0.0	0.0	0.0	0.0
204-	CTPBLT	136	136	77	87	86	0.0	0.0	0.0	0.0
205-	CTPBLT	137	137	87	77	78	0.0	0.0	0.0	0.0
206-	CTPBLT	138	138	78	88	87	0.0	0.0	0.0	0.0
207-	CTPBLT	600	600	105	78	79	0.0	0.0	0.0	0.0
208-	CTPBLT	139	139	88	78	79	0.0	0.0	0.0	0.0
209-	CTPBLT	140	140	79	89	88	0.0	0.0	0.0	0.0
210-	CTPBLT	141	141	99	79	80	0.0	0.0	0.0	0.0
211-	CTPBLT	600	600	105	78	79	0.0	0.0	0.0	0.0
212-	CTPBLT	700	700	3C	51	105	0.0	0.0	0.0	0.0
213-	CTPBLT	890	890	61	107	50	0.0	0.0	0.0	0.0
214-	CTPBLT	900	900	62	50	106	0.0	0.0	0.0	0.0
215-	CTPBLT	910	910	106	107	62	0.0	0.0	0.0	0.0
216-	CTPBLT	920	920	51	63	107	0.0	0.0	0.0	0.0
217-	CTPBLT	1070	1070	72	104	62	0.0	0.0	0.0	0.0
218-	CTPBLT	1090	1090	72	107	63	-14.990	0.0	0.0	0.0
219-	EIGR	4	GTV	0.0	225.	8	0.0	0.0	0.0	0.0
220-	+ONES4	MAX								
221-	GNSFT	1				1	126			
222-	GRIN	1			-17.1790	-17.1089	0.0			
223-	GRIN	2			-8.9523	-15.97250	0.0			
224-	GRIN	3			-0.7257	-14.83610	0.0			
225-	GRIN	4			7.5099	-13.69960	0.0			
226-	GRIN	5			15.7275	-12.56320	0.0			
227-	GRIN	6			23.9542	-11.42640	0.0			
228-	GRIN	7			32.1809	-10.29040	0.0			
229-	GRIN	8			40.4075	-n.1540	0.0			
230-	GRIN	9			48.6361	-n.1176	0.0			
231-	GRIN	10			56.2026	-6.9721	0.0			
232-	GRIN	11			64.2241	-5.4478	0.0	n	126	
233-	GRIN	12			-15.0416	-n.5363	0.0	n	126	
234-	GRIN	13			-11.8732	-n.8247	0.0	n	126	
235-	GRIN	14			-4.0391	-n.11.0792	0.0			
236-	GRIN	15			3.749	-10.3390	0.0			
237-	GRIN	16			11.6289	-n.5885	0.0			
238-	GRIN	17			19.4630	-n.8431	0.0			
239-	GRIN	18			27.2970	-n.0977	0.0			
240-	GRIN	19			35.1310	-n.7.3523	0.0			
241-	GRIN	20			42.965n	-n.6.666n	0.0		126	
242-	GRIN	21			50.7991	-n.8.6114	0.0		126	
243-	GRIN	22			58.0064	-n.5.1757	0.0			
A-5	GRIN	23			-12.3147	-n.4.775	0.0	0	126	
244-	GRIN	24			-n.1.393	-2.7510	0.0	0	126	
245-	GRIN	25			-5.9638	-n.9.305	0.0	0	126	
246-	GRIN	26			1.4330	-n.5.295	0.0			
247-	GRIN	27			n.8207	-n.4.196	0.0			
248-	GRIN	28			16.2255	-n.1097	0.0			
249-	GRIN	29			32.6271	-n.6.998	0.0			

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## S O U R C E D A T A - F G H A

CARD	COUNT	1	2	3	4	5	6	7	8	9	10
251-	GRIN	.50									
252-	GRIN	.31									
253-	GRIN	.32									
254-	GRIN	.33									
255-	GRID	.34									
256-	GRIN	.35									
257-	GRID	.36									
258-	GRIN	.37									
259-	GRID	.38									
260-	GRIN	.39									
261-	GRIN	.40									
262-	GRIN	.41									
263-	GRID	.42									
264-	GRIN	.43									
265-	GRID	.44									
266-	GRID	.45									
267-	GRID	.46									
268-	GRIN	.47									
269-	GRID	.48									
270-	GRIN	.49									
271-	GRIN	.50	0	12.0	49.7	0.0					
272-	GRIN	.51									
273-	GRID	.52									
274-	GRIN	.53									
275-	GRIN	.54									
276-	GRID	.55									
277-	GRIN	.56									
278-	GRIN	.57									
279-	GRID	.58									
280-	GRIN	.59									
281-	GRID	.60									
282-	GRIN	.61									
283-	GRIN	.62	0	12.0	53.5	0.0					
284-	GRIN	.63									
285-	GRIN	.64									
286-	GRID	.65									
287-	GRID	.66									
288-	GRID	.67									
289-	GRIN	.68									
290-	GRID	.69									
291-	GRIN	.70									
292-	GRIN	.71	0	11.25	50.5	0.0					
293-	GRIN	.72									
294-	GRIN	.73									
295-	GRIN	.74									
296-	GRIN	.75									
297-	GRIN	.76									
298-	GRIN	.77									
299-	GRID	.78									

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## FINAL VIBRATION MODES ANALYSTS

JUNE 20, 1973 NASTOAN 6/15/72 DNGF a

S-O-R-T-E D-A-U-L-K-D-A-T-A-F-C-H-O

CARD	1	2	3	4	5	6	7	8	9	10
POINT	GRIN									
301-	81	81	82	83	84	85	85	87	88	89
302-	0	0	0	0	0	0	0	0	0	0
303-	11.25	11.25	29.2236	34.3997	79.5757	46.7519	49.9278	55.1039	60.2799	50.9375
304-	71.2321	71.2321	22.4477	20.1460	10.2443	16.3425	14.4408	12.5391	10.6377	89.6461
305-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
306-	34.3996	79.5757	46.7519	49.9278	55.1039	60.2799	50.9375	60.2799	50.9375	89.6461
307-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
308-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
309-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
311-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
312-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
313-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
314-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
315-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
316-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
317-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
318-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
319-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
321-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
322-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
323-	HEAD	WAT1								
324-	10	10	10	10	10	10	10	10	10	10
325-	16.0+6	16.0+6	16.0+6	16.0+6	16.0+6	16.0+6	16.0+6	16.0+6	16.0+6	16.0+6
326-	6.2+6	6.2+6	6.2+6	6.2+6	6.2+6	6.2+6	6.2+6	6.2+6	6.2+6	6.2+6
327-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
328-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
329-	MAT1									
330-	1	1	1	1	1	1	1	1	1	1
331-	MAT2									
332-	4	4	4	4	4	4	4	4	4	4
333-	MAT2									
334-	6	6	6	6	6	6	6	6	6	6
335-	+POP7									
336-	32	32	32	32	32	32	32	32	32	32
337-	+DNP72									
338-	403	403	403	403	403	403	403	403	403	403
339-	4	4	4	4	4	4	4	4	4	4
340-	11	11	11	11	11	11	11	11	11	11
341-	0MT1									
342-	45	45	45	45	45	45	45	45	45	45
343-	12	12	12	12	12	12	12	12	12	12
344-	THRU									
345-	22	22	22	22	22	22	22	22	22	22
346-	74	74	74	74	74	74	74	74	74	74
347-	45	45	45	45	45	45	45	45	45	45
348-	107	107	107	107	107	107	107	107	107	107
349-	+RA201									
350-	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

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P9AO201  
P80R2010.0  
0.0126  
1260.0  
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0.0

## S-O-R-T-E-D-BULK-GA-T-A-F-C-H-A

350- PARM . 1 . 0 . 7 . 0 . 3 . 0 . 4 . 0 . 5 . 0 . 6 . 0 . 7 . 0 . 8 . 0 . 9 . 0 . 10 .  
 POINT . PRAPI . 202 . 12 . 1304 . 1.1671 . 1 . 0 . 695E-4 . 0 . 0 . 0 . 0 . 0 . 0 .  
 351- +PARP202 . 67 . 0 . -.67 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 352- +PARP202A . 4110 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 353- PNAO . 204 . 12 . 1708 . 1.3131 . 1 . 0 . 697E-4 . 0 . 0 . 0 . 0 . 0 . 0 .  
 354- +PARP203 . 67 . 0 . -.67 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 355- PNAO203A . 4128 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 356- PNAO . 204 . 12 . 1324 . 0 . 983A . 1 . 0 . 7051E-4 . 0 . 0 . 0 . 0 .  
 357- +PARP204 . 70 . 0 . -.70 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 358- +PARP204A . 4199 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 359- PNAO . 205 . 12 . 1316 . 1.0587 . 1 . 0 . 7019E-4 . 0 . 0 . 0 . 0 .  
 360- +PARP205 . 69 . 0 . -.69 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 361- +PARP205A . 4164 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 362- PNAO . 211 . 12 . 2910 . 1.2357 . 1 . 0 . 7012E-3 . 0 . 0 . 0 .  
 363- +PARP211 . 67 . 0 . -.67 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 364- +PARP211A . 2302 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 365- PNAO . 212 . 12 . 29025 . 29059 . 1 . 0 . 6987E-3 . 0 . 0 . 0 .  
 366- +PARP212 . 67 . 0 . -.67 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 367- +PARP212A . 22825 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 368- PPAR . 213 . 12 . 28955 . 29607 . 1 . 0 . 6962E-3 . 0 . 0 . 0 .  
 369- +PAR213 . 655 . 0 . -.655 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 370- +PAR213A . 22625 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 371- PPAR . 214 . 12 . 22145 . 26377 . 1 . 0 . 3184E-3 . 0 . 0 . 0 .  
 372- +PARP214 . 655 . 0 . -.655 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 373- +PARP214A . 2412 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 374- +PARP214B . 2412 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 375- PNAO . 215 . 12 . 22245 . 25345 . 1 . 0 . 3255E-3 . 0 . 0 .  
 376- +PARP215 . 68 . 0 . -.68 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 377- +PARP215A . 2446 . 1 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 378- PPAR . 221 . 13 . 65625 . 769E-2 . 1 . 0 . 0 . 0 . 0 .  
 379- +PARP221 . 1875 . 0 . -.1475 . 0 . 0 . 0 . 0 . 0 .  
 380- +PARP221A . 667 . 1 . 0 . 0 . 0 . 0 . 0 . 0 .  
 381- PPAR . 231 . 11 . 52174 . 0 . 0 . 0 . 0 . 0 .  
 382- +PARP231 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 383- PPAR . 231A . 5 . 5 . 0 . 0 . 0 . 0 . 0 . 0 .  
 384- +PARP241 . 45 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 385- +PARP241A . 87 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 386- PPAR . 242 . 15 . 27125 . 0 . 0 . 0 . 0 . 0 .  
 387- +PARP242 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 388- +PARP242A . 83 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 389- PNAO . 243 . 15 . 296 . 0 . 0 . 0 . 0 .  
 390- +PARP243 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .  
 391- +PARP243A . 83 . 0 . 0 . 0 . 0 . 0 .  
 392- +PARP243A . 83 . 0 . 0 . 0 . 0 . 0 .  
 393- PNAO . 244 . 15 . 289 . 0 . 0 . 0 . 0 .  
 394- +PARP244 . 0 . 0 . 0 . 0 . 0 . 0 .  
 395- +PARP244A . 83 . 0 . 0 . 0 . 0 .  
 396- PPAR . 245 . 15 . 282 . 0 . 0 . 0 .  
 397- +PARP245 . 0 . 0 . 0 . 0 . 0 .  
 398- +PARP245A . 83 . 0 . 0 . 0 .  
 399- PNAO . 246 . 15 . 275 . 0 . 0 . 0 .  
 400- +PARP246 . 0 . 0 . 0 . 0 . 0 .

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CARD	S-O-P-T-E-N-B-U-L-K-N-A-T-A-F-C-H-O
401-	1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7 . . . 8 . . . 9 . . . 10 .
402-	+PBAR246A . . . 83 . . . 83 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
403-	PBAR247 15 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
404-	+PAP247A . . . 83 . . . A3 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
405-	PBAR248 15 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
406-	+PAP248A . . . 83 . . . A3 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
407-	PBAR249 15 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
408-	+PAP249A . . . 83 . . . A3 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
409-	PBAR250 12 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
410-	+PAP250A . . . 83 . . . A3 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
411-	PBAR253 12 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
412-	+PAP253A . . . 83 . . . A3 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
413-	PBAR254 12 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
414-	+PAP254A . . . 83 . . . A3 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
415-	PBAR255 12 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
416-	+PAP255A . . . 83 . . . A3 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 . . . 0 .
417-	PDDLT 151 4 . . . 122 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
418-	PDDLT 152 4 . . . 141 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
419-	PDDLT 153 4 . . . 120 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
420-	PDDLT 154 4 . . . 145 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
421-	PQDPLT 155 4 . . . 135 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
422-	PQDPLT 156 4 . . . 171 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
423-	PQDPLT 157 4 . . . 135 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
424-	PQDPLT 158 4 . . . 145 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
425-	PQDPLT 159 10 . . . 141 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
426-	PQDPLT 160 10 . . . 145 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
427-	PTDPLT 1 7 . . . 005 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
428-	PTDPLT 2 7 . . . 014 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
429-	PTDPLT 3 7 . . . 003 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
430-	PTDPLT 4 7 . . . 011 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
431-	PTDPLT 5 4 . . . 004 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
432-	PTDPLT 6 1 . . . 009 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
433-	PTDPLT 7 1 . . . 003 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
434-	PTDPLT 8 4 . . . 008 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
435-	PTDPLT 9 1 . . . 003 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
436-	PTDPLT 10 1 . . . 006 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
437-	PTDPLT 11 1 . . . 002 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
438-	PTDPLT 12 1 . . . 005 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
439-	PTDPLT 13 6 . . . 001 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
440-	PTDPLT 14 6 . . . 003 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
441-	PTDPLT 15 6 . . . 001 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
442-	PTDPLT 16 6 . . . 002 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
443-	PTDPLT 17 6 . . . 001 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
444-	PTDPLT 18 6 . . . 002 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
445-	PTDPLT 23 7 . . . 121 2 . . . 2 . . . 2 . . . 2 . . . 2 . . . 2 . . . 2 . . . 2 .
446-	PTDPLT 24 7 . . . 109 2 . . . 2 . . . 2 . . . 2 . . . 2 . . . 2 . . . 2 . . . 2 .
447-	PTDPLT 25 7 . . . 081 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
448-	PTDPLT 26 7 . . . 085 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .
449-	PTDPLT 27 3 . . . 061 2 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 . . . 1 .

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CARD	1	2	3	4	5	6	7	8	9	10
451- COUNT	PTPPLT	.29	.038	.043	.048	.104	.337	.4	.52	.52
451- PTPPLT	PTPPLT	.70	.030	.030	.040	.10	.324	.4	.55	.55
452- PTPPLT	PTPPLT	.31	.030	.028	.028	.092	.296	.4	.46	.46
453- PTPPLT	PTPPLT	.32	.030	.020	.020	.098	.267	.4	.49	.49
454- PTPPLT	PTPPLT	.73	.021	.021	.020	.082	.256	.4	.41	.41
455- PTPPLT	PTPPLT	.34	.008	.008	.008	.070	.258	.4	.44	.44
456- PTPPLT	PTPPLT	.35	.008	.008	.008	.072	.185	.4	.36	.36
457- PTPPLT	PTPPLT	.36	.010	.010	.010	.076	.187	.4	.38	.38
458- PTPPLT	PTPPLT	.37	.014	.014	.014	.062	.179	.4	.31	.31
459- PTPPLT	PTPPLT	.38	.007	.007	.007	.066	.181	.4	.33	.33
460- PTPPLT	PTPPLT	.39	.004	.005	.004	.052	.171	.4	.26	.26
461- PTPPLT	PTPPLT	.40	.001	.005	.005	.054	.171	.4	.27	.27
462- PTPPLT	PTPPLT	.45	.137	.137	.137	.212	.529	.4	.79	.79
463- PTPPLT	PTPPLT	.46	.160	.160	.160	.21	.528	.4	.78	.78
464- PTPPLT	PTPPLT	.47	.135	.135	.135	.20	.494	.4	.74	.74
465- PTPPLT	PTPPLT	.48	.143	.143	.143	.20	.494	.4	.74	.74
466- PTPPLT	PTPPLT	.49	.097	.097	.097	.20	.422	.4	.70	.70
467- PTPPLT	PTPPLT	.50	.096	.096	.096	.20	.422	.4	.70	.70
468- PTPPLT	PTPPLT	.51	.066	.066	.066	.20	.355	.4	.63	.63
469- PTPPLT	PTPPLT	.52	.058	.058	.058	.25	.355	.4	.63	.63
470- PTPPLT	PTPPLT	.53	.064	.064	.064	.100	.252	.4	.50	.50
471- PTPPLT	PTPPLT	.54	.037	.037	.037	.114	.294	.4	.57	.57
472- PTPPLT	PTPPLT	.55	.028	.028	.028	.102	.254	.4	.51	.51
473- PTPPLT	PTPPLT	.56	.027	.027	.027	.100	.252	.4	.50	.50
474- PTPPLT	PTPPLT	.57	.013	.013	.013	.890	.197	.4	.45	.45
475- PTPPLT	PTPPLT	.58	.010	.010	.010	.88	.195	.4	.44	.44
476- PTPPLT	PTPPLT	.59	.010	.010	.010	.76	.187	.4	.38	.38
477- PTPPLT	PTPPLT	.60	.008	.008	.008	.74	.188	.4	.37	.37
478- PTPPLT	PTPPLT	.61	.007	.007	.007	.64	.179	.4	.32	.32
479- PTPPLT	PTPPLT	.62	.006	.006	.006	.62	.179	.4	.31	.31
480- PTPPLT	PTPPLT	.67	.174	.174	.174	.231	.611	.4	.49	.49
481- PTPPLT	PTPPLT	.68	.167	.167	.167	.27	.688	.4	.40	.40
482- PTPPLT	PTPPLT	.69	.154	.154	.154	.23	.659	.4	.39	.39
483- PTPPLT	PTPPLT	.70	.132	.132	.132	.12	.545	.4	.33	.33
484- PTPPLT	PTPPLT	.71	.101	.101	.101	.99	.488	.4	.31	.31
485- PTPPLT	PTPPLT	.72	.088	.088	.088	.94	.509	.4	.67	.67
486- PTPPLT	PTPPLT	.73	.069	.069	.069	.79	.354	.4	.65	.65
487- PTPPLT	PTPPLT	.74	.053	.053	.053	.21	.331	.4	.60	.60
488- PTPPLT	PTPPLT	.75	.040	.040	.040	.116	.296	.4	.58	.58
489- PTPPLT	PTPPLT	.76	.031	.031	.031	.03	.193	.4	.46	.46
490- PTPPLT	PTPPLT	.77	.020	.020	.020	.04	.271	.4	.52	.52
491- PTPPLT	PTPPLT	.78	.020	.020	.020	.04	.251	.4	.48	.48
492- PTPPLT	PTPPLT	.79	.010	.010	.010	.02	.181	.4	.37	.37
493- PTPPLT	PTPPLT	.80	.010	.010	.010	.02	.181	.4	.37	.37
494- PTPPLT	PTPPLT	.81	.008	.008	.008	.02	.185	.4	.36	.36
495- PTPPLT	PTPPLT	.82	.007	.007	.007	.02	.181	.4	.36	.36
496- PTPPLT	PTPPLT	.83	.007	.007	.007	.02	.181	.4	.36	.36
497- PTPPLT	PTPPLT	.84	.006	.006	.006	.02	.177	.4	.30	.30
498- PTPPLT	PTPPLT	.85	.007	.007	.007	.03	.126	.3	.31	.31
499- PTPPLT	PTPPLT	.86	.007	.007	.007	.03	.126	.3	.31	.31
500- PTPPLT	PTPPLT	.87	.007	.007	.007	.03	.126	.3	.31	.31

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## S-O-N-E-D BUT-W DATA-F CHAN

CARD	RCINT	1	2	3	4	5	6	7	8	9	10
501-	PTRPLT	.01	.01	.154	.02	.227	.581-4	.78	.78		
502-	PTDPLT	.92	1	.118	2	2.01	.511-4	.69	.69		
503-	PTDMLT	.63	3	.072	2	1.77	.711-4	.61	.61		
504-	PTDPLT	.34	3	.042	2	1.57	.745-4	.54	.54		
505-	PTDPLT	.95	3	.044	2	1.19	.309-4	.55	.55		
506-	PTDPLT	.96	3	.028	2	.940	.214-4	.64	.64		
507-	PTDPLT	.97	3	.027	2	1.0	.269-4	.50	.50		
508-	PTDPLT	.98	1	.020	2	.88	.244-4	.44	.44		
509-	PTDPLT	.99	1	.020	2	.88	.244-4	.44	.44		
510-	PTDPLT	100	1	.010	2	.79	.205-4	.39	.39		
511-	PTDPLT	101	1	.010	2	.78	.189-4	.39	.39		
512-	PTDPLT	102	1	.008	2	.68	.182-4	.34	.34		
513-	PTDPLT	103	1	.007	2	.66	.181-4	.33	.33		
514-	PTDPLT	104	1	.005	2	.58	.175-4	.29	.29		
515-	PTDPLT	105	1	.005	2	.56	.174-4	.28	.28		
516-	PTDPLT	106	1	.004	2	.48	.168-4	.24	.24		
517-	PTDPLT	107	10	.169	2	.33	.12A-3	.11	.11		
518-	PTDPLT	108	7	.089	2	1.73	.288-4	.51	.51		
519-	PTDPLT	109	3	.099	2	1.87	.379-4	.64	.64		
520-	PTDPLT	110	1	.022	2	1.16	.293-4	.43	.43		
521-	PTDPLT	111	1	.027	2	1.28	.279-4	.44	.44		
522-	PTDPLT	112	1	.014	2	1.07	.21A-4	.37	.37		
523-	PTDPLT	113	1	.015	2	.800	.235-4	.40	.40		
524-	PTDPLT	114	1	.010	2	.660	.197-4	.33	.33		
525-	PTDPLT	115	1	.010	2	.72	.201-4	.36	.36		
526-	PTDPLT	116	1	.007	2	.60	.163-4	.39	.39		
527-	PTDPLT	117	1	.008	2	.64	.166-4	.32	.32		
528-	PTDPLT	118	1	.005	2	.530	.171-4	.26	.26		
529-	PTDMLT	119	1	.005	2	.56	.174-4	.28	.28		
530-	PTDPLT	120	6	.003	2	.46	.167-4	.23	.23		
531-	PTDPLT	121	6	.003	2	.48	.182-4	.24	.24		
532-	PTDPLT	122	6	.002	2	.40	.147-4	.20	.20		
533-	PTDMLT	123	6	.002	2	.40	.147-4	.20	.20		
534-	PTDPLT	124	6	1.2676-72	1	.767013854-8	.15785	.15785	.15785		
535-	PTDPLT	125	1	.005	2	.744	.146-4	.28	.28		
536-	PTDPLT	126	6	.001	2	.443	.16A-4	.15	.15		
537-	PTDPLT	127	6	.004	2	.728	.166-4	.26	.26		
538-	PTDPLT	128	6	.001	2	.335	.16n-4	.17	.17		
539-	PTDPLT	129	6	.002	2	.532	.157-4	.21	.21		
540-	PTDPLT	130	6	.001	2	.378	.139-4	.11	.11		
541-	PTDPLT	131	6	.002	2	.38	.145-4	.19	.19		
542-	PTDPLT	132	6	.004	2	.20	.133-6	.08	.08		
543-	PTDPLT	133	6	.001	2	.34	.143-4	.17	.17		
544-	PTDPLT	134	6	.003	2	.18	.132-4	.09	.09		
545-	PTDPLT	135	6	.001	2	.30	.140-4	.15	.15		
546-	PTDMLT	136	6	.003	2	.16	.131-4	.08	.08		
547-	PTDPLT	137	6	.001	2	.29	.139-4	.14	.14		
548-	PTDPLT	138	6	.002	2	.14	.129-4	.07	.07		
549-	PTDPLT	139	6	.001	2	.24	.135-4	.12	.12		
							.167A576A6C6-8	.071926	.071926		

A-11

## C-O-R-T E N - B U L K - D A T A - E C H 0

CARD	1	2	3	4	5	6	7	8	9	10
551-	PTRPLT	141	6	5365.9	.82		1874526854	-8	-093925	-093925
552-	PTRPLT	690	7	.147	2	2.22	.465-4	.7E		.75
553-	PTRPLT	700	3	.128	2	2.04	.518-4	.73		.73
554-	PTRPLT	890	40	.157	2	7.31	.128-3	.81		.81
555-	PTRPLT	900	3	.159	2	2.31	.583-4	.79		.79
556-	PTRPLT	910	3	.126	2	7.53	.015-4	.74		.74
557-	PTRPLT	920	3	.095	2	1.74	.418-4	.62		.62
558-	PTRPLT	1070	3	.099	2	2.14	.366-4	.73		.73
559-	PTRPLT	1190	3	.056	2	1.57	.329-4	.54		.54
560-	SE06D	101	58.5	102	58.6	10.3	58.8	104		70.5
561-	SE05D	105	46.5	106	50.5	107	62.5			
562-	SE05D	111	34.2	112	34.4	113	58.3	114	58.4	
563-	SPC1	2	5	11	23	35	47	59	ini	
	ENDATA									

\*\*NO ERRORS FOUND - EXECUTED NASTRAN PROGRAM\*\*

METHOD 2 NR, NBR\_PASSES = 1,EST, TIME = .2  
METHOD 1 T ,NBR\_PASSES = 1,EST, TIME = .2

NADC-73235-30

A P P E N D I X   B  
NASTRAN STATIC ANALYSIS OUTPUT DATA

NADC-73235-30

POINT ID.		Type	T1	T2	T3	R1	R2	R3	
1	6	0.0	2.0	1.162313E-02	-8.55531E-03	-2.71889E-03	6.0		
2	5	0.0	2.0	2.2504E-02	-4.65288E-03	-1.99369E-03	6.0		
3	5	0.0	2.0	5.9945E-02	-2.65325E-03	-8.42731E-03	6.0		
4	5	0.0	2.0	4.81776E-01	-4.02409E-03	-2.13511E-02	0.0		
5	5	0.0	2.0	4.227638E-01	5.401448E-04	-4.02165E-02	0.0		
6	5	0.0	2.0	6.7222853E-01	-6.241153E-04	-6.878565E-02	0.0		
7	5	0.0	2.0	5.076551E+00	-1.03974E-02	-1.07562E-01	0.0		
8	5	0.0	2.0	2.527253E+00	-1.542975E-02	-1.35513E-01	0.0		
9	5	0.0	2.0	3.715543E+00	-2.614393E-02	-1.73538E-01	0.0		
10	5	0.0	2.0	5.128252E+00	-3.622777E-02	-2.1925823E-01	0.0		
11	5	0.0	2.0	1.279254E-02	-2.09087E-04	0.0	0.0		
12	5	0.0	2.0	-9.391523E-03	-3.27430E-04	-4.45044E-05	0.0		
13	5	0.0	2.0	0.0	4.054744E-04	-2.3906328E-03	6.0		
14	5	0.0	2.0	2.613576E-02	-1.622910E-03	-5.867459E-03	0.0		
15	5	0.0	2.0	1.6238103E-01	-1.125599E-03	-4.76202E-02	0.0		
16	5	0.0	2.0	2.738155E-01	-2.37550E-03	-9.43310E-02	0.0		
17	5	0.0	2.0	5.865596E-01	-4.26974E-03	-1.68733E-02	0.0		
18	5	0.0	2.0	1.149734E+00	-9.239545E-03	-7.94143E-02	0.0		
19	5	0.0	2.0	1.850525E+00	-1.61905E-02	-1.083212E-01	6.0		
20	5	0.0	2.0	6.830256E+00	-2.539169E-02	-1.457129E-01	0.0		
21	5	0.0	2.0	4.636887E+00	-3.564340E-02	-1.75076E-01	0.0		
22	5	0.0	2.0	3.430638E+00	-4.566968E-02	-1.953751E-01	0.0		
23	5	0.0	2.0	2.757547E-02	-1.6338850E-03	0.0	0.0		
24	5	0.0	2.0	-2.027937E-02	-1.034574E-03	-3.104865E-03	6.0		
25	5	0.0	2.0	3.0	0.0	-5.90953E-04	-2.73612E-03	0.0	
26	5	0.0	2.0	5.438202E-02	-5.334769E-03	-2.26226E-02	0.0		
27	5	0.0	2.0	4.745142E-01	-6.950562E-03	-3.959163E-02	0.0		
28	5	0.0	2.0	4.82144E-01	-1.0348993E-02	-6.347387E-02	0.0		
29	5	0.0	2.0	7.973560E-01	-1.968476E-02	-9.091196E-02	0.0		
30	5	0.0	2.0	1.375921E+00	-3.611020E-02	-1.192044E-01	0.0		
31	5	0.0	2.0	2.103939E+00	-5.511988E-02	-1.5533696E-01	0.0		
32	5	0.0	2.0	3.139273E+00	-8.433952E-02	-2.1121734E-01	0.0		
33	5	0.0	2.0	4.228462E+00	-1.222312E-02	-3.193344E-01	0.0		
34	5	0.0	2.0	7.031994E+00	-2.05557E-02	-6.195670E-03	0.0		
35	5	0.0	2.0	2.83557E-02	-1.95670E-03	0.0	0.0		
36	5	0.0	2.0	-3.8055330E-02	-1.035089E-03	-1.02518E-03	0.0		
37	5	0.0	2.0	0.0	1.23E-03	-1.17923E-02	0.0		
38	5	0.0	2.0	1.135407E-02	-1.059762E-02	-1.77595E-02	0.0		
39	5	0.0	2.0	2.647646E-01	-2.95494E-02	-3.13306E-02	0.0		
40	5	0.0	2.0	2.654195E-01	-1.749337E-02	-5.092955E-02	0.0		
41	5	0.0	2.0	4.612564E+00	-2.376695E-02	-7.456337E-02	0.0		
42	5	0.0	2.0	1.645222E+00	-3.54637E-02	-1.323168E-01	0.0		
43	5	0.0	2.0	4.729680E+00	-5.092410E-02	-4.39853E-01	0.0		
44	5	0.0	2.0	3.523738E+00	-7.515690E-02	-1.64750E-01	0.0		
45	5	0.0	2.0	7.508723E+00	-1.042630E-02	-3.534242E-01	0.0		
46	5	0.0	2.0	2.955463E+00	-2.199390E-02	-1.934243E-01	0.0		
47	5	0.0	2.0	1.186794E-02	-6.655372E-03	0.0	0.0		
48	5	0.0	2.0	-6.00195E-02	-1.252673E-03	-3.333936E-03	0.0		
49	5	0.0	2.0	3.0	1.343412E-03	-1.714947E-02	0.0		
50	5	0.0	2.0	-3.077495E-02	-1.033370E-02	-2.173663E-02	0.0		

341-34E COMPOSITE WINGS FINAL ANALYSIS  
A. J. ZINDEL AERO STRUCTURES RESEARCH GROUP

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J I S P - A G C M E N T V E C T O R

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
51	6	0.0	0.0	3.653310E-01	-2.116717E-02	-4.048197E-02	0.0
52	6	0.0	0.0	7.195361E-01	-2.794744E-02	-6.137873E-02	0.0
53	5	0.0	0.0	1.231322E+00	-3.298065E-02	-8.016320E-02	0.0
54	5	0.0	0.0	1.916954E+00	-4.156846E-02	-1.437235E-01	0.0
55	6	0.0	0.0	2.739936E+00	-4.890761E-02	-1.434903E-01	0.0
56	6	0.0	0.0	3.861304E+00	-5.094972E-02	-1.721799E-01	0.0
57	6	0.0	0.0	6.31534E+00	-5.459017E-02	-1.894935E-01	0.0
58	6	0.0	0.0	6.205187E+00	-5.233419E-02	-1.950675E-01	0.0
59	6	0.0	0.0	1.653271E+01	-3.650490E-02	-3.00E-03	0.0
60	6	0.0	0.0	-7.351442E+02	-3.125308E-03	-1.114338E-02	0.0
61	6	0.0	0.0	4.398398E-01	-1.438498E-02	-2.413484E-02	0.0
62	6	0.0	0.0	9.670720E-02	-2.059619E-02	-2.579175E-02	0.0
63	6	0.0	0.0	+4.65892L-01	-2.952339E-02	-4.713592E-02	0.0
64	6	0.0	0.0	8.525493E-01	-3.768769E-02	-7.098905E-02	0.0
65	6	0.0	0.0	1.44512E+00	-4.635110E-02	-9.65d484E-02	0.0
66	6	0.0	0.0	2.142722E+00	-5.146387E-02	-1.242703E-01	0.0
67	6	0.0	0.0	3.68146L+03	-5.536071L-02	-1.368594E-01	0.0
68	6	0.0	0.0	4.144272E+00	-5.745132E-02	-1.783310E-01	0.0
69	6	0.0	0.0	5.352546E+00	-5.775276E-02	-1.923266E-01	0.0
70	6	0.0	0.0	6.512927E+00	-5.326373E-02	-1.964111E-01	0.0
71	6	0.0	0.0	-2.237636E+03	-2.801714E-02	-2.723332E-02	0.0
72	6	0.0	0.0	2.137443E+01	-3.055952E-02	-3.587564E-02	0.0
73	6	0.0	0.0	5.344443E+01	-3.946136E-02	-5.066344E-02	0.0
74	6	0.0	0.0	9.917404E+01	-4.793615E-02	-8.147624E-02	0.0
75	6	0.0	0.0	1.634415E+02	-5.610645E-02	-1.359179E-01	0.0
76	6	0.0	0.0	2.366182E+02	-6.274531E-02	-1.635358E-01	0.0
77	5	0.0	0.0	3.343373E+01	-6.230096E-02	-1.635731E-01	0.0
78	6	0.0	0.0	4.425956E+00	-6.494604E-02	-1.857314E-01	0.0
79	6	0.0	0.0	6.636172E+00	-6.671365E-02	-1.966339E-01	0.0
80	6	0.0	0.0	8.723255E+00	-7.267122E-02	-2.364220E-01	0.0
81	6	0.0	0.0	-2.939883E-02	-4.193560E-02	-3.439023E-02	0.0
82	6	0.0	0.0	6.650258E-01	-4.751697E-02	-4.377281E-02	0.0
83	6	0.0	0.0	6.773411E-01	-5.0447203E-02	-7.024141E-02	0.0
84	6	0.0	0.0	1.223995E+00	-6.076490E-02	-9.307932E-02	0.0
85	6	0.0	0.0	1.914317E+00	-7.043526E-02	-1.24756E-01	0.0
86	6	0.0	0.0	2.785655E+00	-7.998418E-02	-1.551648E-01	0.0
87	6	0.0	0.0	3.836742E+00	-8.59044E-02	-1.799461E-01	0.0
88	6	0.0	0.0	4.931151E+00	-7.0240572E-02	-1.957979E-01	0.0
89	6	0.0	0.0	9.933366E+00	-6.6457051E-02	-2.003930E-01	0.0
90	6	0.0	0.0	7.164142E+00	-6.600740E-02	-2.3383843E-01	0.0
91	6	0.0	0.0	-9.097307E-02	-2.036876E-03	0.0	0.0
92	6	0.0	0.0	-5.706612E-02	-8.506393E-03	-6.535922E-03	0.0
93	6	0.0	0.0	2.336571E-03	-1.3934420E-03	-1.467143E-02	0.0
94	6	0.0	0.0	2.325695E-03	-2.211714E-02	-3.324673E-02	0.0
95	6	0.0	0.0	1.772727E-03	-1.576525E-02	-2.507339E-02	0.0
96	6	0.0	0.0	2.412535E-03	-1.993395E-02	-3.64451E-02	0.0
97	6	0.0	0.0	2.477353E-03	-2.440115E-02	-4.203473E-02	0.0
98	6	0.0	0.0	7.141564E-03	-5.23419E-02	-1.930878E-01	0.0
99	6	0.0	0.0	6.659225E-03	-5.633419E-02	-1.930878E-01	0.0
100	6	0.0	0.0	5.2493536E+00	-5.1623616E-01	-1.930878E-01	0.0

NADC-73235-30

B41-34E 20MPAITE WINS FINAL ANALYSIS  
A.J.ZINNLL AC&C STRUCTURES RESEARCH GROUP

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NADC-73235-30

J ISPACE ELEMENT VECTOR					
POINT ID.	TYPE	R1	R2	R3	
114	3	3.0	4.73332E+00	-5.12231E-02	-1.93874E-01
		J.J			0.0

B24-34L COMPOSITE WING FINAL ANALYSIS  
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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NADC-73235-30

FORCES OF SINGLE-POINT CONSTRAINT

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
11	G	0.0	0.0	0.0	0.0	4.129330E+03	0.0
13	G	0.0	0.0	0.0	0.0	0.0	0.0
23	G	0.0	0.0	0.0	0.0	1.277354E+04	0.0
25	S	0.0	0.0	0.0	0.0	0.0	0.0
35	G	0.0	0.0	0.0	0.0	2.540513E+04	0.0
37	G	0.0	0.0	0.0	0.0	0.0	0.0
47	G	0.0	0.0	0.0	0.0	2.362998E+04	0.0
49	G	0.0	0.0	0.0	0.0	0.0	0.0
59	G	0.0	0.0	0.0	0.0	1.484389E+04	0.0
51	G	0.0	0.0	0.0	0.0	0.0	0.0
151	G	0.0	0.0	0.0	0.0	1.849960E+04	0.0

FORCES IN BENDING TRIANGLES

BEND-MOMENT

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FORCES IN DENDING TRIANGLES

(CONTINUED)

ELEMENT ID.	BEND-MOMENT		TWIST-MOMENT		SHEAR	
	X	Y	X	Y	X	Y
59	1.317395E+02	2.226146E+J2	-1.565990E+02	-2.715066E+01	3.998267E+01	-3.364932E+01
60	4.91152E+01	4.455039E+J2	-4.90053E+02	1.193033E+01	1.622335E+01	-1.622335E+01
61	1.927175E+01	3.792525E+J1	-5.708356E+01	-1.92853E+01	-1.92853E+01	-1.92853E+01
62	1.442126E+01	6.2846351E+01	-5.020208E+01	9.41152E+00	9.41152E+00	-5.654615E+01
67	1.22495E+03	3.73759E+05	-1.25949E+03	9.821759E+01	9.821759E+01	-1.151327E+02
68	7.5993E+02	4.706948E+03	-9.676770E+02	-1.151327E+02	-2.395276E+02	-1.151327E+02
69	2.190725E+03	2.900910E+03	-2.029476E+03	2.116145E+02	-4.252144E+02	-4.252144E+02
70	1.42655E+03	3.559574E+03	-1.558127E+03	-1.08144E+02	1.951522E+02	-1.08144E+02
71	1.035037E+03	2.398145E+03	-1.326021E+03	-5.047951E+01	1.361460E+02	-1.361460E+02
72	1.150345E+03	2.224551E+03	-1.272274E+03	-7.33959E+01	-1.198165E+02	-7.33959E+01
73	6.760313E+02	1.915934E+03	-1.084639E+03	-5.082232E+01	1.215424E+02	-5.082232E+01
74	3.398475E+02	1.612541E+03	-9.15895E+02	7.417931E+01	-1.275450E+02	-1.275450E+02
75	5.84655E+02	1.246352E+03	-7.846063E+02	-2.9345559E+01	1.116856E+02	-1.116856E+02
76	5.501694E+02	3.056352E+03	-5.95448E+02	5.470560E+01	-6.144688E+01	-6.144688E+01
77	3.151477E+02	2.0202227E+02	-3.097110E+02	-4.5050150E+01	4.779446E+01	-4.5050150E+01
78	3.047374E+02	5.62145E+02	-3.91557E+02	4.816552E+01	-5.053095E+01	-5.053095E+01
79	1.631239E+02	3.818238E+02	-1.952271E+02	-4.028192E+01	4.176843E+01	-4.028192E+01
80	1.291254E+02	3.0398326E+02	-1.717342E+02	2.039769E+01	-2.053816E+01	-2.053816E+01
81	3.323143E+01	1.915974E+02	-1.206329E+02	-2.008143E+01	3.6730062E+01	-2.008143E+01
82	5.91279E+01	1.136452E+02	-6.435974E+01	1.4949561E+01	-2.646029E+01	-1.4949561E+01
83	1.59145E+01	3.398399E+01	-5.905205E+01	-1.905205E+01	1.803674E+01	-1.905205E+01
84	1.73033E+01	7.69756E+01	-1.655701E+01	9.5729363E+00	-1.820267E+01	-1.820267E+01
85	1.450523E+01	4.939339E+03	-1.019174E+03	5.476363E+01	6.938015E+01	-6.938015E+01
86	1.51422JE+03	4.862557E+03	-2.647267E+03	2.87734E+01	-5.134161E+01	-5.134161E+01
87	1.01535JE+03	2.774556E+03	-1.468875E+03	1.840563E+02	-7.373292E+01	-7.373292E+01
88	1.272447E+03	2.699732E+03	-1.358389E+03	-1.203085E+02	1.677799E+02	-1.203085E+02
89	7.324553E+02	2.395358E+03	-7.08433E+02	-6.46843E+01	9.097144E+01	-6.46843E+01
90	6.515735E+02	1.325830E+03	-7.08433E+02	5.6085240E+01	-7.08433E+02	-5.6085240E+01
91	1.01535JE+03	1.384934E+03	-7.28346E+02	-5.029581E+01	3.32634E+01	-5.029581E+01
92	4.691739E+02	2.955795E+03	-6.098426E+02	2.072250E+01	-3.743517E+01	-3.743517E+01
93	4.747625E+02	6.55795E+02	-5.102222E+02	-5.765695E+01	5.618601E+01	-5.765695E+01
94	4.137735E+02	8.771391E+02	-3.512412E+02	3.708177E+01	-2.671654E+01	-2.671654E+01
95	3.23015E+02	6.134313E+02	-3.06759E+02	-4.79850E+01	4.36557E+01	-4.79850E+01
96	2.85521JE+02	6.222714E+02	-3.06759E+02	2.701969E+01	-1.999754E+01	-2.701969E+01
97	1.930995E+02	2.9397413E+02	-1.892158E+02	-4.501742E+01	3.526446E+01	-4.501742E+01
98	1.520225E+02	3.09512CE+02	-1.987214E+02	-1.659503E+01	-2.654480E+01	-1.659503E+01
99	1.071387E+02	1.071387E+02	-1.039415E+02	-6.096427E+01	1.6550974E+02	-6.096427E+01
100	1.930995E+02	4.334945E+01	-4.3528E+01	4.749904E+01	-3.79959E+01	-4.749904E+01
101	1.520225E+02	2.939032E+02	-1.723635E+02	-2.021915E+01	1.3032295E+01	-2.021915E+01
102	1.071387E+02	1.131304E+02	-1.651011E+02	-1.659503E+01	4.0746274E+01	-1.659503E+01
103	5.0197465E+01	1.039415E+02	-1.039415E+02	-3.746323E+01	1.6550974E+02	-3.746323E+01
104	4.334945E+01	2.31673E+02	-2.31673E+02	-7.006975E+01	2.61470E+01	-7.006975E+01
105	6.93032E+01	1.071387E+02	-1.071387E+02	-4.612795E+01	1.625197E+01	-4.612795E+01
106	2.113104E+02	2.113104E+02	-2.510211E+02	-2.690425E+01	-3.490100E+01	-2.690425E+01
107	1.31673E+02	3.21673E+02	-3.21673E+02	-3.748761E+01	1.683232E+01	-3.748761E+01
108	6.836897E+02	4.721737E+02	-5.032352E+02	-2.412128E+02	-1.407443E+02	-2.412128E+02
109	2.393322E+02	2.613137E+02	-2.613137E+02	-3.23023E+01	2.365702E+01	-3.23023E+01
110	2.648692E+02	2.984713E+02	-2.984713E+02	-3.748761E+01	1.716397E+01	-3.748761E+01
111	2.936342E+02	3.32352E+02	-3.32352E+02	-2.412128E+02	-1.407443E+02	-2.412128E+02
112	1.919361E+02	2.613137E+02	-2.613137E+02	-3.23023E+01	2.365702E+01	-3.23023E+01
113	1.651127E+02	3.053542E+02	-3.053542E+02	-2.021915E+01	1.716397E+01	-2.021915E+01
114	1.227332E+02	3.053542E+02	-3.053542E+02	-2.021915E+01	1.716397E+01	-2.021915E+01
115	1.227332E+02	3.053542E+02	-3.053542E+02	-2.021915E+01	1.716397E+01	-2.021915E+01

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B24-34C COMPOSITE WING FINAL ANALYSIS  
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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FORCES IN BENDING TRIANGLES (CTRPLT)

ELEMENT ID.	BEND-MOMENT		TWIST-MOMENT		SHEAR X		SHEAR Y	
	X	Y	X	Y	X	Y	X	Y
117	1.146394E+02	-2.538707E+02	-1.506753E+02	-2.250816E+01	-2.59335E+01	1.34725E+00	-3.57632E+01	-1.579374E+01
118	-3.051237E+01	1.498578E+02	-9.369573E+01	-1.79235E+01	-8.64556E+01	-1.532476E+01	-8.632476E+01	-1.5379391E+00
119	3.047243E+01	1.233874E+02	-3.2.02.2094E+01	-6.379391E+00	-3.02.2094E+01	-6.44490E+01	-3.0406595E+01	-6.44490E+01
120	-3.0482913E+01	2.0372224E+01	-2.0372224E+01	-2.0372224E+01	-2.0372224E+01	-2.0372224E+01	-2.0372224E+01	-2.0372224E+01
121	1.0662121E+01	-2.037379E+01	-7.471374E+01	-1.163040E+01	-7.471374E+01	-1.163040E+01	-7.471374E+01	-1.163040E+01
122	4.546334E+00	-1.695558E+01	-1.0535957E+01	-2.0502820E+00	-1.0535957E+01	-2.0502820E+00	-1.0535957E+01	-2.0502820E+00
123	1.052613E+01	-1.052613E+01	-7.148226E+01	-3.089147E+01	-7.148226E+01	-3.089147E+01	-7.148226E+01	-3.089147E+01
124	1.017293E+01	-2.083256E+01	-2.764140E+01	-2.764140E+01	-2.764140E+01	-2.764140E+01	-2.764140E+01	-2.764140E+01
125	1.017492E+01	-1.863342E+01	-6.254349E+01	-1.399377E+01	-6.254349E+01	-1.399377E+01	-6.254349E+01	-1.399377E+01
126	1.0523943E+00	-1.245139E+02	-3.204115E+01	-6.0235616E+00	-3.204115E+01	-6.0235616E+00	-3.204115E+01	-6.0235616E+00
127	3.168340E+01	-1.599340E+01	-1.074304E+01	-2.084725E+00	-1.074304E+01	-2.084725E+00	-1.074304E+01	-2.084725E+00
128	7.750753E+00	-7.750753E+00	-1.963407E+01	-4.928458E+00	-1.963407E+01	-4.928458E+00	-1.963407E+01	-4.928458E+00
129	2.333241E+01	-2.523434E+01	-7.053164E+01	-3.953164E+01	-7.053164E+01	-3.953164E+01	-7.053164E+01	-3.953164E+01
130	5.023733E+01	-5.023733E+01	-9.914049E+01	-5.775143E+00	-9.914049E+01	-5.775143E+00	-9.914049E+01	-5.775143E+00
131	1.693622E+01	-1.693622E+01	-2.693621E+01	-6.094266E+01	-2.693621E+01	-6.094266E+01	-2.693621E+01	-6.094266E+01
132	-1.164335E+00	-1.164335E+00	1.898724E+01	-5.468114E+01	1.898724E+01	-5.468114E+01	1.898724E+01	-5.468114E+01
133	1.403253E+01	-3.536131E+01	-1.575070E+01	-1.446679E+01	-1.575070E+01	-1.446679E+01	-1.575070E+01	-1.446679E+01
134	3.658835E+00	-1.232344E+01	-4.560297E+01	-4.392835E+00	-4.560297E+01	-4.392835E+00	-4.560297E+01	-4.392835E+00
135	1.613823E+01	-2.582376E+01	-7.3685259E+00	-1.262664E+01	-7.3685259E+00	-1.262664E+01	-7.3685259E+00	-1.262664E+01
136	3.413757E+00	-1.624492E+01	1.55u712E+01	-1.0u921E+01	1.55u712E+01	-1.0u921E+01	1.55u712E+01	-1.0u921E+01
137	1.024492E+01	-1.575070E+01	-1.575070E+01	-1.575070E+01	-1.575070E+01	-1.575070E+01	-1.575070E+01	-1.575070E+01
138	1.673971E+00	-1.673971E+00	-2.52311E+01	-2.52311E+01	-2.52311E+01	-2.52311E+01	-2.52311E+01	-2.52311E+01
139	5.052393E+00	-5.052393E+00	-6.191433E+01	-6.191433E+01	-6.191433E+01	-6.191433E+01	-6.191433E+01	-6.191433E+01
140	1.452147E+01	-1.452147E+01	-6.0438570E+01	-3.519796E+01	-6.0438570E+01	-3.519796E+01	-6.0438570E+01	-3.519796E+01
141	5.115235E+01	-2.359351L+00	-1.397666E+01	-1.395515E+01	-1.397666E+01	-1.395515E+01	-1.397666E+01	-1.395515E+01
142	-1.039180E+01	-2.485369E+01	-1.039180E+01	-1.039180E+01	-2.485369E+01	-1.039180E+01	-2.485369E+01	-1.039180E+01
143	2.004713E+03	-2.004713E+03	-1.01419975E+03	-1.01419975E+03	-2.004713E+03	-1.01419975E+03	-2.004713E+03	-1.01419975E+03
144	-1.01419975E+03	-2.437259E+03	-1.01419975E+03	-2.310476E+03	-1.01419975E+03	-2.310476E+03	-1.01419975E+03	-2.310476E+03
145	7.537655E+02	-3.023655E+03	-1.01419975E+03	-1.01419975E+03	-3.023655E+03	-1.01419975E+03	-3.023655E+03	-1.01419975E+03
146	1.305303L+03	-2.416329E+03	-1.01419975E+03	-1.01419975E+03	-2.416329E+03	-1.01419975E+03	-2.416329E+03	-1.01419975E+03
147	1.316912L+03	-1.038299E+03	-1.01419975E+03	-1.01419975E+03	-1.038299E+03	-1.01419975E+03	-1.038299E+03	-1.01419975E+03
148	8.297222E+02	-1.37693E+02	-1.01419975E+03	-1.01419975E+03	-1.37693E+02	-1.01419975E+03	-1.37693E+02	-1.01419975E+03
149	4.6253E+02	-2.018661E+02	-1.01419975E+03	-1.01419975E+03	-2.018661E+02	-1.01419975E+03	-2.018661E+02	-1.01419975E+03
150	1.037752E+02	-1.07752E+02	-1.01419975E+03	-1.01419975E+03	-1.07752E+02	-1.01419975E+03	-1.07752E+02	-1.01419975E+03

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FORCES IN DEDDING QUADRILATERALS (COPPLT)

ELEMENT ID.	BEND-MOMENT X	BEND-MOMENT Y	TWIST-MOMENT	SHEAR X	SHEAR Y
151	4.983511E+01	1.259625E+03	-5.907062E+04	2.474742E+01	1.933552E+01
152	5.832035E+01	3.097510E+02	-1.691953E+02	2.446944E+01	6.447308E+01
153	1.531152E+02	2.151127E+03	-6.913795E+01	4.021112E+01	1.519148E+01
154	1.636321E+02	2.369255E+03	-2.351547E+02	4.202294E+01	4.56477E+01
155	2.946233E+02	4.048552E+03	-8.244751E+01	5.45756E+01	-1.636266E+01
156	3.089373E+02	4.214724E+03	-5.925058E+02	5.962795E+01	1.833518E+01
157	3.290452E+02	5.230588E+03	-6.588244E+01	7.386028E+01	-1.692459E+01
158	3.308651E+02	4.396245E+03	-2.467325E+02	1.445715E+02	-0.536455E+02
159	2.629643E+02	2.522585E+03	-2.381573E+02	2.942607E+01	-1.376027E+01
160	3.838731E+02	6.126233E+03	-1.944479E+02	2.479386E+02	-8.147008E+01

NADC-73235-30

3Q1-34E COMPOSITE WING, FINAL ANALYSIS  
A.J.Z MODEL AERO STRUCTURES RESEARCH GROUP

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FORCES IN JAR ELEMENTS

(C B A R)

ELEMENT ID.	BEND-MOMENT END-A		BEND-MOMENT END-B		SHEAR - PLANE 1		SHEAR - PLANE 2		AXIAL FORCE	
	PLANE 1	PLANE 2	PLANE 1	PLANE 2	PLANE 1	PLANE 2	PLANE 1	PLANE 2	PLANE 1	PLANE 2
261	6.458416E+03	0.0	6.557115E+03	0.0	-2.41533E+01	0.0	-2.41533E+01	0.0	6.247327E-02	0.0
202	6.402260E+03	0.0	7.277037E+03	0.0	-1.94525E+02	0.0	-1.94525E+02	0.0	2.942332E-01	0.0
203	5.907171E+02	0.0	6.654623E+02	0.0	-2.5337E+01	0.0	-2.5337E+01	0.0	-1.65305E+00	0.0
204	6.649563E+02	0.0	6.419733E+02	0.0	1.177258E+01	0.0	1.177258E+01	0.0	2.437634E-02	0.0
205	5.347503E+02	0.0	3.778154E+02	0.0	2.043214E+01	0.0	2.043214E+01	0.0	6.30511E-02	0.0
211	1.548466E+02	0.0	-1.082251E+03	0.0	4.14146E+02	0.0	4.14146E+02	0.0	-4.97100E+01	0.0
212	7.339721E+01	0.0	-2.557424E+02	0.0	4.460495E+02	0.0	4.460495E+02	0.0	-3.208663E+01	0.0
213	4.398345E+02	0.0	-4.398339E+02	0.0	1.658072E+02	0.0	1.658072E+02	0.0	-2.913572E+01	0.0
214	3.278343E+02	0.0	-2.433141E+02	0.0	6.958293E+01	0.0	6.958293E+01	0.0	-1.423569E+02	0.0
215	1.731574E+02	0.0	-1.457532E+02	0.0	3.650212E+01	0.0	3.650212E+01	0.0	-6.83442E+01	0.0
221	-8.357971E+02	0.0	-6.253875E+01	0.0	1.91342E+01	0.0	1.91342E+01	0.0	-8.94430E+01	0.0
222	-7.213157E+02	0.0	-4.361403E+00	0.0	-1.01345E+01	0.0	-1.01345E+01	0.0	-3.98335E+00	0.0
223	1.627603E+02	0.0	6.45755E+01	0.0	3.468318E+01	0.0	3.468318E+01	0.0	-6.300220E+01	0.0
224	1.990440E+01	0.0	-5.927458E+01	0.0	1.09927E+01	0.0	1.09927E+01	0.0	-5.634572E+01	0.0
231	3.0	0.0	-2.214571E-08	0.0	5.287335E-09	0.0	5.287335E-09	0.0	-1.982649E-09	0.0
232	-1.430116E-08	0.0	-2.214571E-08	0.0	1.602045E-09	0.0	1.602045E-09	0.0	-2.024950E-10	0.0
233	1.340316E+01	0.0	2.539625E+01	0.0	-4.154253E+00	0.0	-4.154253E+00	0.0	-3.876242E+00	0.0
234	-8.142239E+01	0.0	-1.149939E+02	0.0	1.236753E+01	0.0	1.236753E+01	0.0	7.463531E+01	0.0
235	1.035328E-07	0.0	7.157273E-08	0.0	6.319229E-09	0.0	6.319229E-09	0.0	-7.415332E-09	0.0
236	5.387335E-03	0.0	-4.473343E-06	0.0	2.235174E-08	0.0	2.235174E-08	0.0	-7.415332E-09	0.0

STRESSES IN 3 ENDING TRIANGLES (CTRPLT)

ELEMENT DISTANCE FIBRE STRESSES IN ELEMENT COORD SYSTEM  
ID. NORMAL-X NORMAL-Y SHEAR-XV ANGLE PRINCIPAL STRESSES (ZERO SHEAR)  
MAX SHEAR

ELEMENT ID.	DISTANCE	FIBRE	PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR
			ANGLE	MAJOR	MINOR	
1	-2.30000E-01	-3.793571E+11	-9.070975E+C2	-1.95701dE+02	-1.08555	3.375439E+01
	-2.30000E-01	3.793571E+11	3.375875E+02	1.357818E+02	-1.791434	1.024036E+03
2	-4.60000E-01	-1.296500E+03	-3.0J93581E+03	1.20J9359E+03	26.6527	-6.890163E+02
	-4.00000E-01	1.296300E+03	3.0J93581E+03	-1.20J8359E+03	-63.3173	3.70J634E+03
3	-2.30000E-01	-1.43620E+03	-2.386167E+03	1.05332E+03	28.7971	-4.694894E+02
	-2.30000E-01	1.343626E+03	2.386167E+03	-1.05332E+03	-61.6249	2.05334E+03
4	-4.00000E-01	-2.329704E+03	-4.262500E+03	2.493869E+03	34.62921	-8.495310E+02
	-4.30000E-01	2.329764E+03	4.262500E+03	-2.463389E+03	-55.7079	5.942732E+03
5	-2.50000E-01	-6.104312E+03	-4.010610E+03	1.526557E+03	36.7334	-1.965967E+03
	-2.50000E-01	3.104312E+03	4.010610E+03	-1.526557E+03	-55.2055	2.143850E+03
6	-3.70000E-01	-4.011769E+03	-4.049243E+03	2.373845E+03	44.5391	-2.281816E+03
	-3.70000E-01	4.517680E+03	4.694243E+03	-2.373842E+03	-45.4619	7.033117E+03
7	-2.30000E-01	-4.161515E+03	-3.951840E+03	2.16962E+03	46.33875	-1.891177E+03
	-2.30000E-01	4.161515E+03	3.951840E+03	-2.162902E+03	-43.0125	6.222179E+03
8	-3.40000E-01	-5.127880E+03	-4.7593360E+03	3.0809560E+03	46.3633	-1.670278E+03
	-3.40000E-01	5.127880E+03	4.7593360E+03	-3.0809560E+03	-43.5337	8.810952E+03
9	-2.10000E-01	-3.930597E+03	-5.114424E+03	3.031655E+03	39.9327	-1.392803E+03
	-2.10000E-01	3.930597E+03	5.114424E+03	-3.031655E+03	-50.6073	7.552219E+03
10	-3.10000E-01	-4.579602E+03	-5.469602E+03	4.48838E+03	42.4835	-5.885729E+02
	-3.10000E-01	4.579602E+03	5.469602E+03	-4.48838E+03	-47.5142	9.580034E+03
11	1.00000E-01	-2.883400E+03	-6.276025E+03	3.257705E+03	36.2232	-9.8851734E+02
	-1.00000E-01	2.383400E+03	6.276025E+03	-3.257705E+03	-59.7733	8.474312E+03
12	2.70000E-01	-4.0J60551E+03	-6.527233E+03	3.835566E+03	35.9551	-1.229470E+03
	-2.70000E-01	4.0J60551E+03	6.527233E+03	-3.835566E+03	-54.0364	9.334319E+03
13	-1.60000E-01	-1.951850E+03	-4.086516E+03	2.09749E+03	27.4236	-9.763833E+02
	-1.60000E-01	1.951850E+03	4.086516E+03	-2.09749E+03	-62.5794	5.933617E+03
14	-2.40000E-01	-2.083400E+03	-5.044262E+03	3.315396E+03	34.0581	-6.417213E+02
	-2.40000E-01	2.382079E+03	5.044262E+03	-3.315396E+03	-55.9413	7.787420E+03
15	-1.40000E-01	-1.0J7332E+03	-3.21425E+03	1.9J7219E+03	30.3327	4.129938E+01
	-1.40000E-01	1.0J7332E+03	3.21425E+03	-1.9J7219E+03	-59.6173	4.323057E+02
16	2.0J5000E-01	-1.514721E+03	-3.767019E+03	2.2J1150E+03	31.4434	-6.65231E+02
	-2.0J5000E-01	1.514721E+03	3.767019E+03	-2.2J1150E+03	-58.5556	5.113817E+03

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T H E N G L A N D I T R A N S F O R M A T I O N

ELEMENT ID.	FIBRE DISTANCE	STRESSES IN ELEMENTS		ANGLE	MAJOR	MINOR
		NORMAL-X	SHEAR-XY			
17	1.23100E-01 -1.23100E-01	1.101976E+01 -1.101976E+01	-2.171371E+03 2.171371E+03	1.243427E+03 -1.243427E+03	24.3654 -24.3654	-2.73459E+02 2.73459E+02
18	1.733610E-01 -1.733610E-01	6.078905E+02 -6.078905E+02	-2.045591E+03 2.045591E+03	1.290605E+03 -1.290605E+03	21.1144 -68.6326	-2.654287E+03 2.654287E+03
23	7.037650E-01 -7.037650E-01	-2.070032E+03 2.070032E+03	-3.049179E+03 3.049179E+03	2.472943E+03 -2.472943E+03	34.6922 -55.1348	-3.477173E+02 5.623111E+03
24	7.48000E-01 -7.48000E-01	-3.077355E+03 3.077355E+03	-7.290192E+03 7.290192E+03	4.332006E+03 -4.332006E+03	33.8477 -56.1523	-8.293521E+02 1.031950E+04
25	5.40030E-01 -5.40030E-01	-3.725496E+03 3.725496E+03	-8.245753E+03 8.245753E+03	4.297745E+03 -4.297745E+03	36.0292 -53.1740	-5.603343E+02 9.466305E+03
26	5.50000E-01 -5.50000E-01	-4.769492E+03 4.769492E+03	-8.115889E+03 8.115889E+03	5.468930E+03 -5.468930E+03	36.5548 -53.4452	-7.0J12821E+02 1.0<10980E+04
27	5.70000E-01 -5.70000E-01	-5.391583E+03 5.391583E+03	-7.408951E+03 7.408951E+03	5.105106E+03 -5.105106E+03	40.2596 -49.4434	-1.5222217E+03 1.105332E+04
28	5.03000E-01 -5.03000E-01	-7.567639E+03 7.567639E+03	-9.700383E+03 9.700383E+03	6.210663E+03 -6.210663E+03	41.9441 -48.0353	-1.5251747E+03 1.462291E+04
29	5.20000E-01 -5.20000E-01	-7.748162E+03 7.748162E+03	-1.057162E+04 1.057162E+04	7.14948E+03 -7.14948E+03	39.4147 -56.6853	-1.872789E+03 1.644099E+04
30	5.30000E-01 -5.30000E-01	-8.32063L+03 8.32063E+03	-1.080103E+04 1.080103E+04	8.228269E+03 -8.228269E+03	40.7123 -49.2877	-1.239551E+03 1.708214E+04
31	4.66000E-01 -4.66000E-01	-7.423635E+03 7.423635E+03	-1.202874E+04 1.202874E+04	7.837737E+03 -7.837737E+03	36.8142 -53.1938	-1.557231E+03 1.789515E+04
32	4.90000E-01 -4.90000E-01	-7.330837E+03 7.330837E+03	-1.142391E+04 1.142391E+04	8.5282296E+03 -8.5282296E+03	39.2293 -56.7933	-9.311013E+02 1.645358E+04
33	4.13000E-01 -4.13000E-01	-6.115012E+03 6.115012E+03	-1.117692E+04 1.117692E+04	7.50529E+03 -7.50529E+03	35.6823 -54.3177	-1.656651E+02 1.656651E+04
34	4.40000E-01 -4.40000E-01	-7.533645E+03 7.533645E+03	-9.772104E+03 9.772104E+03	7.873160E+03 -7.673160E+03	40.9540 -49.0454	-7.0J5295E+02 1.660529E+04
35	3.60000E-01 -3.60000E-01	-5.093733E+03 5.093733E+03	-1.363165E+04 1.363165E+04	7.297148E+03 -7.297148E+03	31.0593 -56.9417	-1.514050E+03 1.832553E+04
36	3.80000E-01 -3.80000E-01	-5.129066E+03 5.129066E+03	-1.233224E+04 1.233224E+04	7.450855E+03 -7.450855E+03	33.6337 -56.3303	-1.103022E+03 1.103022E+04

ELEMENT ID.	STRESSES IN ELEMENT COORDINATE SYSTEM			PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR
	NORMAL-X	NORMAL-Y	SHEAR-X	ANGLE-X	MAJOR	MINOR	
37	-3.104500E-01 -3.104500E-01	-3.345186E+03 3.345186E+03	-7.101063E+03 7.101063E+03	5.277505E+03 -5.277505E+03	35.23E+03 -75.4793E+03	3.784025E+02 1.038525E+04	-1.038525E+04 -5.78445E+02
38	-3.539900E-01 -3.539900E-01	-2.541056E+03 2.541056E+03	-5.745617E+03 5.745617E+03	-4.774544E+03 -4.774544E+03	35.5943 -54.4557	8.763127E+02 9.211196E+03	5.601126E+03 5.601126E+03
39	2.634400E-01 -2.634400E-01	-3.650841E+02 -3.650841E+02	-4.011910E+03 4.011910E+03	3.663360E+03 -3.663360E+03	67.4663 -62.6443	1.951732E+03 5.529383E+03	-5.529383E+03 -1.951732E+03
40	-2.769330E-01 -2.769330E-01	-1.3503821E+03 -1.3503821E+03	-2.0494441E+03 2.0494441E+03	2.255521E+03 -2.255521E+03	25.6930 -60.5373	2.290623E+03 3.639243E+03	-5.839423E+03 -2.290623E+03
41	7.966166E-01 -7.966166E-01	-4.0294836E+03 4.0294836E+03	-1.0143434E+04 1.0143434E+04	5.207116E+03 -5.207116E+03	35.3220 -59.5730	-1.245361E+03 1.319390E+04	-1.319390E+04 1.245361E+03
42	7.464400E-01 -7.464400E-01	-5.244542E+03 5.244542E+03	-1.257781E+04 1.257781E+04	6.296445E+03 -6.296445E+03	29.8253 -66.1747	-1.594642E+03 1.913751E+04	-1.610751E+04 1.594642E+03
43	-7.493300E-01 -7.493300E-01	-5.046024E+03 5.046024E+03	-1.116983E+04 1.116983E+04	6.642551E+03 -6.642551E+03	35.3717 -56.6293	-1.034983E+03 1.055451E+04	-1.034983E+04 1.055451E+04
44	-7.463000E-01 -7.463000E-01	-6.052981E+03 6.052981E+03	-1.372199E+04 1.372199E+04	8.169628E+03 -8.169628E+03	35.5991 -56.4133	-1.42283E+03 1.914969E+04	-1.914969E+04 1.42283E+03
45	-7.033000E-01 -7.033000E-01	-7.614096E+03 7.614096E+03	-1.329631E+04 1.329631E+04	7.957111E+03 -7.957111E+03	35.1732 -54.3253	-2.007155E+03 1.839153E+04	-1.894585E+04 2.007155E+03
46	-7.033000E-01 -7.033000E-01	-9.578956E+03 9.578956E+03	-1.444783E+04 1.444783E+04	9.155214E+03 -9.155214E+03	37.55E+05 -52.4455	-2.540000E+03 2.143678E+04	-2.143678E+03 2.540000E+04
47	-7.033000E-01 -7.033000E-01	-8.391248E+03 8.391248E+03	-1.054345E+04 1.054345E+04	9.413623E+03 -9.413623E+03	35.4175 -54.5325	-2.197226E+03 2.212852E+04	-2.197225E+03 1.97225E+03
48	-5.303000E-01 -5.303000E-01	-8.391248E+03 8.391248E+03	-1.543420E+04 1.543420E+04	-9.413623E+03 -9.413623E+03	35.6741 -53.1259	-1.874489E+03 2.204305E+04	-1.874489E+03 2.204305E+04
49	-5.303000E-01 -5.303000E-01	-9.352618E+03 9.352618E+03	-1.514925E+04 1.514925E+04	9.969332E+03 -9.969332E+03	36.8741 -53.1259	-1.766630E+03 2.204305E+04	-1.874489E+03 2.204305E+04
50	-5.703000E-01 -5.703000E-01	-8.506226E+03 8.506226E+03	-1.6674417E+04 1.6674417E+04	1.032373E+04 -1.032373E+04	33.9106 -56.0334	-1.766630E+03 2.341406E+04	-1.341406E+03 1.766630E+04
51	-5.303000E-01 -5.303000E-01	-8.391248E+03 8.391248E+03	-1.054345E+04 1.054345E+04	9.413623E+03 -9.413623E+03	35.4175 -54.5325	-2.197226E+03 2.212852E+04	-2.197225E+03 1.97225E+03
52	-6.303000E-01 -6.303000E-01	-9.352618E+03 9.352618E+03	-1.514925E+04 1.514925E+04	9.969332E+03 -9.969332E+03	35.6741 -53.1259	-1.874489E+03 2.204305E+04	-1.874489E+03 2.204305E+04
53	-5.703000E-01 -5.703000E-01	-8.506226E+03 8.506226E+03	-1.6674417E+04 1.6674417E+04	1.032373E+04 -1.032373E+04	33.9106 -56.0334	-1.766630E+03 2.341406E+04	-1.341406E+03 1.766630E+04
54	-5.606000E-01 -5.606000E-01	-9.3023743E+03 9.3023743E+03	-1.523743E+04 1.523743E+04	-1.617175E+04 -1.617175E+04	36.8696 -53.1314	-1.674443E+03 -55.0054	-1.674443E+03 -55.0054
55	-5.106000E-01 -5.106000E-01	-7.6083710E+03 7.6083710E+03	-1.468432E+04 1.468432E+04	9.946097E+03 -9.946097E+03	34.9336 -53.1314	-1.014537E+03 -52.1353	-1.014537E+03 -52.1353
56	-2.000000E-01 -2.000000E-01	-3.569747E+03 8.3509747E+03	-4.283452E+04 1.283452E+04	9.647325E+03 -9.647325E+03	39.2185 -50.7315	-1.036385E+03 -2.073705E+04	-1.036385E+03 -2.073705E+04

AQI-34E COMPOSITE WING FINAL ANALYSIS  
A. J. ZINDEL AERO STRUCTURES RESEARCH GROUP

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STRESSES IN 3-D HINGING TRAIL ANGLES (C T R P L T)

STRESSES IN ELEMENT CARD SYSTEM (ZERO SHEAR)  
NORM-X NORM-Y SHEAR-X

MAX  
SHEAR

ELEMENT ID. FL321 DISTANCE ANGLE PRINCIPAL STRESSES (ZERO SHEAR) MINOR MAJOR

ELEMENT ID.	FL321 DISTANCE	ANGLE	PRINCIPAL STRESSES (ZERO SHEAR)		MAX SHEAR
			MAJOR	MINOR	
57	4.55000E-01 -4.55000E-01	-7.152854E+03 7.152854E+03	-1.760593E+03 1.760593E+03	9.076010E+03 -9.076010E+03	29.9137 -2.02277E+04
58	4.40000E-01 -4.40000E-01	-7.058764E+03 7.058764E+03	-1.645520E+04 1.645520E+04	8.333053E+03 -8.333053E+03	-1.83114E+03 2.02277E+04
59	3.80000E-01 -3.80000E-01	-3.864905E+03 3.864905E+03	-8.436557E+03 8.436557E+03	5.722762E+03 -5.722762E+03	34.1196 -55.8354
60	3.70000E-01 -3.70000E-01	-2.014881E+03 2.014881E+03	-5.982975E+03 5.982975E+03	4.463797E+03 -4.463797E+03	33.0679 -50.9321
61	3.20000E-01 -3.20000E-01	-4.092655E+01 +4.092655E+01	-4.477834E+03 4.477834E+03	2.619547E+03 -2.619547E+03	24.8346 -65.1652
62	3.10000E-01 -3.10000E-01	-7.045953E+02 7.045953E+02	-3.2469E+03 3.2469E+03	1.5503727E+03 -1.5503727E+03	25.6710 -64.3293
63	8.00000E-01 -8.00000E-01	-5.03616E+03 5.03616E+03	-1.718377E+04 1.718377E+04	7.078113E+03 -7.078113E+03	25.3932 -64.0398
64	8.00000E-01 -8.00000E-01	-5.716933E+03 5.716933E+03	-2.254825E+04 2.254825E+04	4.041095E+04 -4.041095E+04	40.0550 -77.5134
65	7.90000E-01 -7.90000E-01	-1.126891E+04 1.126891E+04	-4.87669E+04 1.0467669E+04	1.04141695E+04 -1.04141695E+04	49.9120 -2.355250E+04
66	7.36000E-01 -7.36000E-01	-8.197879E+03 8.197879E+03	-1.692435E+04 1.692435E+04	8.646913E+03 -8.646913E+03	31.0774 -58.4220
67	7.10000E-01 -7.10000E-01	-7.09776E+03 7.09776E+03	-1.689462E+04 1.085325E+04	9.428146E+03 -9.23146E+03	31.8973 -58.1327
68	5.76000E-01 -5.76000E-01	-8.338259E+03 8.338259E+03	-1.691468E+04 1.091468E+04	9.777920E+03 -9.777920E+03	33.7778 -58.2322
69	5.50000E-01 -5.50000E-01	-8.224469E+03 8.252469E+03	-1.804893E+04 1.804893E+04	1.02181810E+04 -1.62181810E+04	32.1943 -57.8357
70	6.00000E-01 -6.00000E-01	-9.50770E+03 9.57770E+03	-1.691493E+04 1.0712310E+04	9.777920E+03 -1.036516E+04	34.9147 -55.6355
71	6.00000E-01 -6.00000E-01	-8.338259E+03 8.252469E+03	-1.793235E+04 1.0804893E+04	1.02181810E+04 -1.62181810E+04	32.1943 -57.8357
72	5.80000E-01 -5.80000E-01	-9.63920E+03 9.63920E+03	-1.689462E+04 1.0712310E+04	1.02181810E+04 -1.62181810E+04	34.9147 -55.6355
73	5.80000E-01 -5.80000E-01	-9.638810E+03 9.633105E+03	-1.8021213E+04 1.0821213E+04	1.02181810E+04 -1.62181810E+04	36.2765 -56.7255
74	5.80000E-01 -5.80000E-01	-9.63920E+03 9.63920E+03	-1.793235E+04 1.0712310E+04	1.02181810E+04 -1.62181810E+04	34.9147 -55.6355
75	5.80000E-01 -5.80000E-01	-9.638810E+03 9.633105E+03	-1.8021213E+04 1.0821213E+04	1.02181810E+04 -1.62181810E+04	36.2765 -56.7255

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ELEMENT ID.	FIBRE DISTANCE	STRESSES IN ELEMENT COORDINATE SYSTEM		PRINCIPAL STRESSES (ZERO SHEAR ANGLE)		PRINCIPAL STRESSES (ZERO SHEAR ANGLE MAJOR MINOR)	
		NORMAL-X	NORMAL-Y	1.0328121E+03	-1.32814751E+04	-2.314751E+03	1.0328121E+03
77	5.23465E-01 -5.23465E-01	-8.0193844E+03 8.0193844E+03	-1.03281793E+04 1.03281793E+04	1.0328121E+04 -1.0328121E+04	3.41215 -55.03737	-1.328121E+03 1.328121E+03	1.0328121E+04 -1.0328121E+04
78	4.00000E-01 -4.00000E-01	-8.754898E+03 8.754898E+03	-1.0349144E+04 1.0349144E+04	8.0193737E+03 -9.0193737E+03	37.03195 -52.0315	-2.0184711E+03 2.0030233E+04	-2.0184011E+03 2.0184011E+03
79	4.60000E-01 -4.60000E-01	-7.053977E+03 7.053977E+03	-1.056412E+04 1.056412E+04	8.00000E+03 -8.00000E+03	3.00000E+03 -5.00000E+03	-2.0243847E+03 2.0232725E+04	-2.0243847E+04 2.023262E+04
80	4.20000E-01 -4.20000E-01	-8.338324E+03 6.338324E+03	-1.0301297E+04 1.0301297E+04	7.0214596E+03 -7.0214596E+03	32.03933 -57.0157	-1.0729286E+03 1.0722210E+04	-1.0729286E+04 1.0722210E+03
81	3.90000E-01 -3.90000E-01	-3.246628E+03 3.246628E+03	-7.0246628E+03 7.0246628E+03	4.0923084E+03 -4.0923084E+03	33.03934 -56.06350	-0.0664732E-01 1.071456E+04	-1.071456E+03 0.0664732E-01
82	3.60000E-01 -3.60000E-01	-3.015126E+03 3.015126E+03	-5.0123032E+03 5.0123032E+03	3.0796187E+03 -3.0796187E+03	37.05580 -52.04242	-1.0800996E+02 8.0042058E+03	-8.0042058E+03 8.0042058E+02
83	3.30000E-01 -3.30000E-01	-7.0211805E+02 7.0211805E+02	-1.0588024E+03 1.0588024E+03	1.0878700E+03 -1.0878700E+03	38.07179 -51.02821	7.0549580E+02 3.0094703E+03	-3.0094703E+02 -7.0094958E+02
84	3.00000E-01 -3.00000E-01	-8.051539E+02 8.051539E+02	-3.0346833E+01 3.0346833E+01	9.0170506E+02 -9.0170506E+02	57.1217 -32.08793	5.0543038E+02 1.0453466E+03	-1.0450446E+03 -5.054038E+02
85	2.7053237E+03 -2.7053237E+03	-6.0224893E+03 2.0224893E+04	-9.0360528E+03 -7.0335523E+03	9.0360528E+03 -7.0335523E+03	2.050300 -60.06700	-3.0487370E+03 2.04687370E+03	-2.0487370E+03 3.0487370E+03
86	2.61000E-01 -2.61000E-01	-7.060525E+03 7.060525E+03	-2.0503450E+04 2.0503450E+04	-1.0355757E+04 -1.0355757E+04	-61.01920 -2.0539530E+04	-2.0497211E+02 3.0259530E+04	-3.0259530E+02 -2.0497211E+02
87	2.00000E-01 -2.00000E-01	-1.0181644E+03 9.0181644E+03	-1.0403772E+04 1.0403772E+04	7.0541050E+03 -7.0541050E+03	34.03099 -55.06111	-3.0204250E+03 1.0499424E+04	-3.0204250E+03 1.0499424E+04
88	1.90000E-01 -1.90000E-01	-7.040581E+03 7.040581E+03	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.01473 -58.0527	-2.0037940E+03 2.0037940E+04	-2.0037940E+04 2.0037940E+03
89	1.80000E-01 -1.80000E-01	-6.05609E+03 6.05609E+03	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
90	1.70000E-01 -1.70000E-01	-8.37375E+03 8.37375E+03	-1.0704604E+04 1.0704604E+04	9.0007982E+03 -9.0007982E+03	3.022503 -57.07437	-2.0643222E+03 2.0273090E+04	-2.0643222E+04 2.0273090E+03
91	1.60000E-01 -1.60000E-01	-7.040581E+03 7.040581E+03	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.013387 -58.06013	-1.0899600E+03 2.0302751E+04	-1.0899600E+04 2.0302751E+03
92	1.50000E-01 -1.50000E-01	-7.051539E+02 7.051539E+02	-1.0588024E+03 1.0588024E+03	8.00000E+03 -8.00000E+03	3.00000E+03 -58.06013	-2.0058940E+04 2.0037940E+03	-2.0058940E+04 2.0037940E+03
93	1.40000E-01 -1.40000E-01	-6.05609E+03 6.05609E+03	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
94	1.30000E-01 -1.30000E-01	-8.37375E+03 8.37375E+03	-1.0704604E+04 1.0704604E+04	9.0007982E+03 -9.0007982E+03	3.022503 -57.07437	-2.0643222E+03 2.0273090E+04	-2.0643222E+04 2.0273090E+03
95	1.20000E-01 -1.20000E-01	-7.051539E+02 7.051539E+02	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.013387 -58.06013	-1.0899600E+03 2.0302751E+04	-1.0899600E+04 2.0302751E+03
96	1.10000E-01 -1.10000E-01	-6.05609E+02 6.05609E+02	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
97	1.00000E-01 -1.00000E-01	-7.040581E+02 7.040581E+02	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.01473 -58.0527	-2.0037940E+03 2.0037940E+04	-2.0037940E+04 2.0037940E+03
98	9.00000E-02 -9.00000E-02	-6.05609E+01 6.05609E+01	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
99	8.00000E-02 -8.00000E-02	-7.040581E+01 7.040581E+01	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.01473 -58.0527	-2.0037940E+03 2.0037940E+04	-2.0037940E+04 2.0037940E+03
100	7.00000E-02 -7.00000E-02	-6.05609E+00 6.05609E+00	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
101	6.00000E-02 -6.00000E-02	-7.040581E-01 7.040581E-01	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.01473 -58.0527	-2.0037940E+03 2.0037940E+04	-2.0037940E+04 2.0037940E+03
102	5.00000E-02 -5.00000E-02	-6.05609E-01 6.05609E-01	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
103	4.00000E-02 -4.00000E-02	-7.040581E-01 7.040581E-01	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.01473 -58.0527	-2.0037940E+03 2.0037940E+04	-2.0037940E+04 2.0037940E+03
104	3.00000E-02 -3.00000E-02	-6.05609E-01 6.05609E-01	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
105	2.00000E-02 -2.00000E-02	-7.040581E-01 7.040581E-01	-1.0273057E+04 1.0273057E+04	7.0946500E+03 -7.0946500E+03	3.01473 -58.0527	-2.0037940E+03 2.0037940E+04	-2.0037940E+04 2.0037940E+03
106	1.00000E-02 -1.00000E-02	-6.05609E-01 6.05609E-01	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03
107	0.00000E+00 -0.00000E+00	-6.05609E-01 6.05609E-01	-1.0775243E+04 1.0775243E+04	8.0544014E+03 -8.0544014E+03	27.0751 -62.04239	-1.0667250E+03 2.0223078E+04	-2.0223078E+04 1.0667250E+03

STRESSES IN JENDING TRIANGLES (CTRPLT)

STRESSES IN ELEMENT COORD SYSTEM PRINCIPAL STRESSES (ZERO SHEAR)

FIBRE DISTANCE NORMAL-X Y SHEAR-X Y ANGLE MAJOR MINOR MAX SHEAR

ANGLE

MINOR

MAJOR

SHEAR

**B-15**

041-34E COMPOSITE MINS FINAL ANALYSIS  
A.J. ZINDEL AERO STRUCTURES RESEARCH GROUP

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STRESSES IN JUNGING TIRIANSLE STRESSES (CTRPLT)

STRESSES IN ELEMENT GUARD SYSTEM PRINCIPAL STRESSES (ZERO SHEAR)

SHAR

ELEMENT ID.	FLOOR DISTANCE	NORMAL-X	NORMAL-Y	SHEAR-XY	ANGLE	MAJOR MINOR	MAX
113	4.00000E-01 -4.00000E-01	-5.091629E+03 5.091629E+03	-1.359323E+04 1.359323E+04	6.154113E+03 -0.154113E+03	27.6878 -62.3122	-1.860231E+03 1.030195E+04	-1.081954E+04 1.302310E+03
114	3.30100E-01 -3.30000E-01	-4.049172E+03 4.049172E+03	-1.151587E+04 1.151587E+04	5.0391619E+03 -5.0391619E+03	28.4d+5 -61.5152	-1.560528E+03 1.442716E+04	-1.442716E+04 1.506528E+03
115	3.60000E-01 -3.60000E-01	-4.0489512E+03 4.0489512E+03	-1.235137E+04 1.235137E+04	6.14d370E+03 -6.148370E+03	28.7534 -61.2019	-1.117629E+03 1.571525E+04	-1.02f0182E+03 1.117099E+03
116	3.90000E-01 -3.90000E-01	-5.186726E+03 5.186726E+03	-1.075755E+04 1.075755E+04	5.781696E+03 -5.734596E+03	32.1535 -57.0512	-1.554464E+03 1.453931E+04	-1.435964E+04 1.524464E+03
117	3.20000E-01 -3.20000E-01	-4.0721574E+03 4.0721574E+03	-1.015483E+04 1.015483E+04	6.028614E+03 -6.028614E+03	32.8713 -67.1237	-8.257639E+02 1.4055163E+04	-2.405636E+04 8.257699E+02
118	2.60000E-01 -2.60000E-01	-4.018669E+03 4.018669E+03	-7.793127E+03 7.793127E+03	4.07191dE+03 -4.07191dE+03	34.0449 -52.1254	-7.094370E+02 1.118482E+04	-2.114d40E+04 7.949763E+02
119	2.40000E-01 -2.40000E-01	-3.274456E+03 3.274456E+03	-6.969094E+03 6.969094E+03	4.505528E+03 -4.505528E+03	34.0149 -55.9631	-2.337295E+02 9.953421E+03	-9.953421E+02 2.337295E+02
120	2.30000E-01 -2.30000E-01	-2.074377E+03 2.074377E+03	-3.088705E+03 3.088705E+03	-2.455349E+03 -2.455349E+03	38.0326 -51.9674	-7.0496137E+02 5.803322E+03	-2.049322E+03 7.490197E+02
121	2.40000E-01 -2.40000E-01	-1.492970E+03 1.492970E+03	-1.029912E+03 1.029912E+03	1.019857E+03 -1.019857E+03	44.0133 -45.0027	2.727038E+02 3.368692E+03	-3.368692E+03 -2.727038E+02
122	2.00000E-01 -2.00000E-01	-8.540434E+02 8.540434E+02	-7.471374E+01 -7.471374E+01	1.1433040E+03 -1.123640E+03	56.2325 -33.7075	8.256044E+02 1.604934E+03	-1.0604934E+03 -8.256044E+02
123	2.00000E-01 -2.00000E-01	-1.032613E+02 1.032613E+02	1.695633E+03 -1.056336E+03	5.003957E+02 -5.003957E+02	73.5599 -40.0034	1.872039E+03 2.797131E+02	-2.797131E+02 -1.872039E+03
124	1.80000E-01 -1.80000E-01	-1.611677E+03 1.611677E+03	1.443721E+03 -1.143721E+03	5.002635E+02 -5.002635E+02	78.4d58 -11.5952	1.26d843E+03 1.732795E+03	-1.732795E+03 -1.20d43E+03
125	2.80000E-01 -2.80000E-01	-6.425896E+02 6.425896E+02	-2.569462E+03 2.569462E+03	1.547935E+03 -1.547935E+03	29.0227 -63.9433	2.172182E+02 3.422327E+03	-3.422327E+02 -2.172182E+02
126	1.60000E-01 -1.60000E-01	-2.544739E+02 2.544739E+02	-3.013347E+03 3.013347E+03	1.045592E+03 -1.045592E+03	16.6339 -71.3091	d.803699E+01 3.365595E+03	-3.365595E+03 -8.036999E+01
127	2.56000E-01 -2.56000E-01	-2.059421E+03 2.059421E+03	-8.080402E+03 8.080402E+03	2.112172E+03 -2.112172E+03	17.4030 -72.5370	-1.338101E+03 8.741722E+03	-6.741722E+03 1.338101E+03
128	1.20000E-01 -1.20000E-01	-9.369692E+02 9.369692E+02	-4.283803E+03 4.283803E+03	1.289857E+03 -1.289857E+03	18.7935 -71.2014	-4.946314E+02 4.722695E+03	-4.722695E+02 4.946314E+03

STRESSES IN TRIANGLES

STRESSES IN ELEMENT COORD SYSTEM

NORMA-X

NORMA-Y

SHEAR-XY

ANGLE  
ELEMENT  
ID.

PIRE  
DISTANCE

ANGLE  
NORMA-X

ANGLE  
NORMA-Y

ANGLE  
SHEAR-XY

ANGLE  
MAJOR

ANGLE  
MINOR

ANGLE  
ZERO SHEAR

ANGLE  
MAX  
SHEAR

CTRP LT									
PRINCIPAL STRESSES (ZERO SHEAR)									
123	2.10339E-01	-2.49963E+03	-7.01324E+03	2.06164E+03	-1.1933E+03	-1.72727E+03	-5.3335394E+03	3.303833E+03	3.303833E+03
130	1.10360E-01	-5.911115E+02	-3.84866E+03	1.69611E+03	-7.09729	-2.536975E+02	-4.18078E+03	2.596975E+02	1.96190E+03
131	1.95030E-01	-1.95143E+03	-6.306169E+03	1.90893E+03	-1.0380J	-1.060850E+03	-7.24492E+03	1.0546462E+03	3.189806E+03
132	-1.69005E-01	-1.041084E+03	-4.746810E+03	1.352028E+03	-1.80591	-6.002424E+02	-5.047695E+03	6.293745E+03	6.293745E+03
133	1.75333E-01	-1.972438E+03	-6.014663E+03	2.115940E+03	-2.304566	-1.0367443E+03	-6.919648E+03	2.926163E+03	2.926163E+03
134	9.09006E-02	-1.157651E+03	-3.097902E+03	1.356039E+03	-2.33743	-5.7414424E+02	-4.281410E+03	1.855034E+03	1.855034E+03
135	1.50000E-01	-1.820735E+03	-3.873556E+03	1.894326E+03	-30.77*8	-6.925195E+02	-2.001079E+03	2.154536E+03	2.154536E+03
136	8.00000E-02	-9.103351E+02	-1.964949E+03	1.048714E+03	31.653J	-2.638249E+02	-2.0114299E+03	1.173617E+03	1.173617E+03
137	1.40000E-01	-1.428689E+03	-2.171997E+03	1.513239E+03	38.1J37	-2.417035E+02	-3.357985E+03	1.558145E+03	1.558145E+03
138	-7.00000E-02	-5.858894E+02	-5.514144E+02	6.341800E+02	45.7735	b.575236E+01	-1.203096E+03	6.344142E+02	6.344142E+02
139	1.25000E-01	-6.63459L+02	3.033373E+01	7.339729E+01	56.7691	5.092560E+02	-1.085298E+03	7.972771E+02	7.972771E+02
140	5.00000E-02	-8.7112679E+01	5.663262E+02	2.111678E+02	72.2737	5.738613E+02	-1.54699E+02	3.642650E+02	3.642650E+02
141	1.00000E-01	-1.278809E+02	5.898452E+02	3.494214E+02	67.0019	7.318594E+02	-2.698951E+02	5.003772E+02	5.003772E+02
142	-3.00000E-02	-1.950999E+01	2.742685E+02	1.742532E+02	58.4774	3.842103E+02	-1.798295E+01	2.010960E+02	2.010960E+02
693	7.50000E-01	-1.53427E+04	-1.301297E+04	9.637829E+03	41.3249	-2.05190E+03	2.145405E+04	2.000019E+03	9.687433E+03
700	7.30000E-01	-8.46900E+03	-1.18515E+04	-3.679349E+03	35.603J	-4.91309E+03	-2.032246E+04	1.910053E+03	9.205399E+03

844-34E COMPOSITE WING FINAL ANALYSIS  
A. J. ZINNEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FLYBY DISTANCE	STRESSES IN 3 ELEMENTS TRIANGLES			(C T R P L T ) PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR
		NORMAL-X	NORMAL-Y	SHEAR-X	ANGLE	MAJOR	MINOR	
890	3.10000E-01 -3.10000E-01	<u>-3.914650E+J3</u> <u>3.914650E+J3</u>	<u>-2.3133863E+04</u> <u>2.3133863E+04</u>	<u>1.135124E+04</u> <u>-1.135124E+04</u>	25.0593 -64.447	1.080997E+03 2.080434E+04	-2.080994E+04 -1.080997E+03	1.0535267E+J4 1.0535267E+J4
903	7.90000E-01 -7.90000E-01	<u>-6.488377E+J3</u> <u>6.488377E+J3</u>	<u>-1.562324E+04</u> <u>1.562324E+04</u>	<u>7.473040E+03</u> <u>-7.473040E+03</u>	30.1372 -59.6628	-2.149429E+J2 1.935216E+04	-1.936216E+J2 2.149429E+J3	0.603592E+03 0.606356E+J3
910	7.00000E-01 -7.00000E-01	<u>-7.734240E+J3</u> <u>7.734240E+J3</u>	<u>-1.0419114E+04</u> <u>1.0419114E+04</u>	<u>7.043807E+03</u> <u>-7.043807E+03</u>	33.3405 -56.0332	-2.002991E+03 1.912233E+04	-1.912233E+04 2.0802304E+J3	0.159714E+03 0.159714E+J3
925	6.20000E-01 -6.20000E-01	<u>-6.052691E+03</u> <u>6.052691E+03</u>	<u>-1.0457576E+04</u> <u>1.0457576E+04</u>	<u>7.0236850E+03</u> <u>-7.0236850E+03</u>	29.7529 -66.2471	-1.915394E+03 1.871255E+04	-1.871245E+04 1.915394E+03	0.396536E+03 0.396536E+J3
1070	7.30000E-01 -7.30000E-01	<u>-3.2570294E+J3</u> <u>3.2570294E+J3</u>	<u>-6.0152340E+03</u> <u>6.0152340E+03</u>	<u>6.0518064E+03</u> <u>-6.0518064E+03</u>	35.0535 -54.3465	3.036425E+02 1.0239411E+04	-1.0239411E+04 -3.036455E+J2	0.366878E+J4 0.366878E+J3
1090	5.40000E-01 -5.40000E-01	<u>-1.261149E+J3</u> <u>1.261149E+J3</u>	<u>-1.017612E+04</u> <u>1.017612E+04</u>	<u>2.420051E+03</u> <u>-2.420051E+03</u>	9.0193 -83.9317	-8.755482E+02 1.655152E+04	-1.655152E+02 8.755152E+02	7.0442968E+J2 7.0442968E+J3

844-34E-10400-00

BQ4-34E COMPOSITE WING FINAL ANALYSIS  
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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NADU-15235-30

ELEMENT ID.	FIBRE DISTANCE	STRESSSES IN ELEMENT COORD SYSTEM			PRINCIPAL STRESSES (ZERO SHEAR)			(C Q J P L T )		
		NORMAL-X			ANGLE			MINOR		
		SHEAR-XY			MAJOR			SHEAR		
151	8.10000E-01	-3.308791E+02	-7.033541E+03	2.594033E+02	2.2124	-3.205576E+02	-7.045435E+03	5.362289E+03	5.362289E+03	5.362289E+03
	-8.10000E-01	3.308791E+02	7.033541E+03	-2.594033E+02	-87.7876	7.045335E+03	3.208570E+02	3.022234E+03	3.022234E+03	3.022234E+03
152	8.10000E-01	-3.333684E+02	-5.223286E+03	7.042174E+02	6.4379	-2.232117E+02	-5.336383E+03	-5.336383E+03	<5.55550E+03	<5.55550E+03
	-8.10000E-01	3.333684E+02	5.223286E+03	-7.042174E+02	-81.5021	5.336383E+03	2.32117E+02	2.55550E+03	2.55550E+03	2.55550E+03
153	8.10000E-01	-1.033527E+03	-1.452011E+04	4.630311E+02	1.9735	-1.017398E+03	-1.453624E+04	6.759420E+03	6.759420E+03	6.759420E+03
	-8.10000E-01	1.033527E+03	1.452011E+04	-4.630311E+02	-68.5215	1.453024E+04	1.017398E+03	6.759420E+03	6.759420E+03	6.759420E+03
154	8.10000E-01	-9.140827E+02	-1.151069E+04	1.613523E+03	6.9024	-7.536601E+02	-1.167110E+02	5.050719E+03	5.050719E+03	5.050719E+03
	-8.10000E-01	9.140827E+02	1.151069E+04	-1.613523E+03	-83.0376	1.167110E+02	7.536601E+02	5.050719E+03	5.050719E+03	5.050719E+03
155	8.10000E-01	-1.707725E+03	-2.291375E+04	4.946865E+02	1.2376	-1.756856E+03	-2.43223E+04	-2.43223E+04	1.27768E+04	1.27768E+04
	-8.10000E-01	1.707725E+03	2.291375E+04	-4.946865E+02	-88.7424	1.756856E+03	2.43223E+04	1.27768E+04	1.27768E+04	1.27768E+04
156	8.10000E-01	-1.463674E+03	-1.996449E+04	1.47133E+03	4.4456	-1.351193E+03	-2.007639E+03	-2.007639E+03	9.362645E+03	9.362645E+03
	-8.10000E-01	1.463674E+03	1.996449E+04	-1.47133E+03	-85.2544	1.351193E+03	2.007639E+03	9.362645E+03	9.362645E+03	9.362645E+03
157	8.10000E-01	-2.297787E+03	-5.138353E+04	3.952394E+02	7795	-2.292410E+03	-3.158099E+04	-1.052424E+04	-1.052424E+04	-1.052424E+04
	-8.10000E-01	2.297787E+03	5.138353E+04	-3.952394E+02	-89.2215	3.138330E+04	2.292410E+03	1.052424E+04	1.052424E+04	1.052424E+04
158	8.10000E-01	-1.048281E+03	-2.735144E+04	-1.345001E+03	3.0137	-1.777538E+03	-2.742218E+04	1.777538E+03	-2.742218E+04	1.777538E+03
	-8.10000E-01	1.048281E+03	2.735144E+04	-1.345001E+03	-86.9893	1.777538E+03	2.742218E+04	1.777538E+03	2.742218E+04	1.777538E+03
159	8.10000E-01	-1.510649E+03	-3.173123E+04	1.368138E+03	2.5d58	-1.448037E+03	-3.179305E+04	-3.179305E+04	1.517210E+04	1.517210E+04
	-8.10000E-01	1.510649E+03	3.173123E+04	-1.368138E+03	-87.4132	3.179305E+04	1.448037E+03	1.517210E+04	1.517210E+04	1.517210E+04
160	-8.10000E-01	-4.965412E+03	-3.0416922E+04	5.834466E+03	10.8833	-3.043039E+03	-3.031099E+04	-3.031099E+04	1.573368E+04	1.573368E+04
	-8.10000E-01	4.965412E+03	3.0416922E+04	-5.834466E+03	-79.1157	3.031099E+04	3.043039E+03	1.573368E+04	1.573368E+04	1.573368E+04

BQ4-34E COMPOSITE WING FINAL ANALYSIS  
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STRESS STATE IN ELEMENTS

ELEMENT ID.	SAT.	SAT.	SA3	SA4	AXIAL STRESS	( 3 J A R )		SA-MIN	SA-MIN
	SB1	SB2	SB3	SB4		SA-4AX	SA-MAX	H.S.-T	H.S.-C
201	-3.344545E+03	3.344545E+03	-3.295561E+03	3.675561E+03	3.295561E+03	3.344545E+03	-3.344545E+03	-3.344545E+03	-3.344545E+03
	-3.405334E+03	3.405334E+03	-3.353821E+03	-3.353821E+03	3.353821E+03	3.405334E+03	-3.405334E+03	-3.405334E+03	-3.405334E+03
202	-3.675561E+03	3.675561E+03	-3.675561E+03	3.675561E+03	3.675561E+03	3.675561E+03	-3.675561E+03	-3.675561E+03	-3.675561E+03
	-4.177391E+03	4.177391E+03	-4.177391E+03	-4.177391E+03	4.177391E+03	4.177391E+03	-4.177391E+03	-4.177391E+03	-4.177391E+03
203	-3.314392E+02	3.314392E+02	-3.614392E+02	-3.614392E+02	3.614392E+02	3.314392E+02	-3.314392E+02	-3.314392E+02	-3.314392E+02
	-3.397395E+02	3.397395E+02	-3.448672E+02	-3.448672E+02	3.448672E+02	3.397395E+02	-3.397395E+02	-3.397395E+02	-3.397395E+02
204	-4.730818E+02	-4.730818E+02	-4.730818E+02	-4.730818E+02	4.730818E+02	4.6633235E+02	-4.730818E+02	-4.730818E+02	-4.730818E+02
	-4.353911E+02	4.353911E+02	-4.353911E+02	-4.353911E+02	4.353911E+02	4.291712E+02	-4.353911E+02	-4.353911E+02	-4.353911E+02
205	-3.435235E+02	3.435235E+02	-3.435235E+02	-3.435235E+02	3.435235E+02	3.434724E+02	-3.434724E+02	-3.434724E+02	-3.434724E+02
	-2.416733E+02	2.416733E+02	-2.416733E+02	-2.416733E+02	2.416733E+02	2.381737E+02	-2.381737E+02	-2.381737E+02	-2.381737E+02
211	-8.669646E+01	-8.669646E+01	-8.669646E+01	-8.669646E+01	-8.669646E+01	-8.669646E+01	-8.669646E+01	-8.669646E+01	-8.669646E+01
	-5.636302E+02	-5.636302E+02	-5.636302E+02	-5.636302E+02	-5.636302E+02	-5.636302E+02	-5.636302E+02	-5.636302E+02	-5.636302E+02
212	-1.738399E+02	-1.738399E+02	-1.738399E+02	-1.738399E+02	-1.738399E+02	-1.6994479E+02	-1.6994479E+02	-1.6994479E+02	-1.6994479E+02
	-5.896353E+02	-5.896353E+02	-5.896353E+02	-5.896353E+02	-5.896353E+02	-5.764524E+02	-5.764524E+02	-5.764524E+02	-5.764524E+02
213	-9.731486E+02	-9.731486E+02	-9.731486E+02	-9.731486E+02	-9.731486E+02	-9.731486E+02	-9.731486E+02	-9.731486E+02	-9.731486E+02
	-9.660332E+02	-9.660332E+02	-9.660332E+02	-9.660332E+02	-9.660332E+02	-9.660332E+02	-9.660332E+02	-9.660332E+02	-9.660332E+02
214	-3.143652E+02	8.143652E+02	-8.143652E+02	-8.143652E+02	-8.143652E+02	-8.451571E+02	8.451571E+02	8.451571E+02	8.451571E+02
	b.166135E+02	-6.166135E+02	6.166135E+02	-6.166135E+02	6.166135E+02	6.401546E+02	-6.401546E+02	-6.401546E+02	-6.401546E+02
215	-4.645759E+02	-4.645759E+02	-4.645759E+02	-4.645759E+02	-4.645759E+02	-4.645759E+02	-4.645759E+02	-4.645759E+02	-4.645759E+02
	3.938205E+02	-3.938205E+02	3.938205E+02	-3.938205E+02	3.938205E+02	-3.938205E+02	-3.938205E+02	-3.938205E+02	-3.938205E+02
221	2.037457E+02	-2.037457E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.522434E+02	-1.522434E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
222	-1.754733E+02	-1.754733E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.653157E+02	-1.653157E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
223	-3.968474E+01	-3.968474E+01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	-1.574353E+02	1.574353E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
224	-4.452100E+02	-4.452100E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.445181E+02	-1.445181E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
231	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
232	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JG4-34E COMPOSITE WING FINAL ANALYSIS  
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NADG-13235-30

ELEMENT ID.	STRUCTURAL ELEMENTS IN STAR ELEMENTS				(STAR)		
	S41	S42	S43	S44	AXIAL STRESS	SA-MAX	SA-MIN
	S31	S32	S33	S34	S3-MAX	S3-MIN	H.S.-T H.S.-C
233	3.0 3.0	3.0 3.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
234	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
235	3.0 3.0	3.0 3.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
236	3.0 3.0	3.0 3.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

**NADC-73235-30**

**A P P E N D I X C**

**NASTRAN VIBRATION ANALYSIS OUTPUT DATA**

FTGFNVALUE = 1.60921561E+04

## REAL FREQUENCY NUMBER NO. 1

POINT NO.	TYPE	T1	T2	T3	R1	R2	R7
1	6	0.0	2.4968935E-05	-6.35624E-05	-5.589043E-05	-5.589043E-05	0.0
2	6	0.0	2.452854E-04	-7.250932E-15	-3.649462E-15	0.0	0.0
3	6	0.0	2.041438E-04	-2.674279E-04	7.76044E-07	0.0	0.0
4	6	0.0	-1.655724E-03	-7.414392E-04	5.79502E-04	0.0	0.0
5	6	0.0	-1.441446E-02	-1.421476E-03	2.015745E-02	0.0	0.0
6	6	0.0	-6.424297E-02	-2.150931E-03	4.485762E-03	0.0	0.0
7	6	0.0	-9.450497E-02	-7.041551E-02	8.245774E-03	0.0	0.0
8	6	0.0	-6.69320E-01	-3.37547E-02	1.444574E-02	0.0	0.0
9	6	0.0	-3.4773745E-01	-7.37342E-02	2.664964E-02	0.0	0.0
10	6	0.0	-5.51902E-01	-2.041273E-02	3.011169E-02	0.0	0.0
11	6	0.0	-4.044279E-05	3.232903E-05	0.0	0.0	0.0
12	6	0.0	-3.74049E-05	2.82794E-05	-1.635567E-05	0.0	0.0
13	6	0.0	3.0	7.312456E-06	-9.041734E-05	0.0	0.0
14	6	0.0	-4.0111090E-05	-6.374592E-05	5.473645E-05	0.0	0.0
15	6	0.0	-1.5022393E-07	-5.415233E-04	4.0763261E-04	0.0	0.0
16	6	0.0	-8.601454E-03	-7.442104E-04	1.446276E-03	0.0	0.0
17	6	0.0	-2.074392E-02	-1.241457E-03	3.207680E-03	0.0	0.0
18	6	0.0	-6.464779E-02	-1.739547E-02	6.10673E-03	0.0	0.0
19	6	0.0	-1.205439E-01	-2.64811E-02	1.015917E-02	0.0	0.0
20	6	0.0	-2.391890E-01	-2.790962E-02	1.729615E-02	0.0	0.0
21	6	0.0	-4.050470E-01	-2.454597E-02	2.467904E-02	0.0	0.0
22	6	0.0	-6.113733E-01	-1.279314E-02	1.0111129E-02	0.0	0.0
23	6	0.0	6.0	8.138940E-04	0.0	0.0	0.0
24	6	0.0	4.724464E-04	5.744441E-05	6.464455E-05	0.0	0.0
25	6	0.0	3.0	-2.526513E-05	9.164471E-03	0.0	0.0
26	6	0.0	-1.302281E-03	-7.964274E-05	4.31544E-04	0.0	0.0
27	6	0.0	-6.801624E-03	-2.76059E-04	1.203753E-03	0.0	0.0
28	6	0.0	-2.674739E-02	-4.216363E-04	2.582695E-03	0.0	0.0
29	6	0.0	-4.736345E-02	-6.469674E-04	4.93946E-03	0.0	0.0
30	6	0.0	-9.636196E-02	-9.297794E-04	8.376757E-03	0.0	0.0
31	6	0.0	-1.743105E-01	-1.351459E-02	1.274532E-02	0.0	0.0
32	6	0.0	-2.958400E-01	-1.25512E-03	1.99337E-02	0.0	0.0
33	6	0.0	-4.0724291E-01	-8.394925E-04	2.608155E-02	0.0	0.0
34	6	0.0	-6.751649E-01	5.207032E-04	3.046677E-02	0.0	0.0
35	6	0.0	2.759431E-03	1.518799E-04	0.0	0.0	0.0
36	6	0.0	1.053016E-07	9.228374E-05	2.566637E-04	0.0	0.0
37	6	0.0	0.0	-9.354352E-06	4.476613F-04	0.0	0.0
38	6	0.0	-4.77633E-03	2.855274E-04	1.0211934E-03	0.0	0.0
39	6	0.0	-1.680158E-02	1.7E92320E-04	2.077676AE-03	0.0	0.0
40	6	0.0	-3.6582338E-02	2.572954E-04	3.09239E-03	0.0	0.0
41	6	0.0	-7.276059E-02	3.044908E-04	5.555035E-03	0.0	0.0
42	6	0.0	-1.727445E-01	2.692336E-04	1.07473AE-02	0.0	0.0
43	6	0.0	-2.34319E-01	1.039E7U-E-04	4.548977E-02	0.0	0.0
44	6	0.0	-3.584491E-01	5.247935E-04	2.780444L-02	0.0	0.0
45	6	0.0	-5.405694E-01	5.02252E-04	2.899216E-02	0.0	0.0
46	6	0.0	-7.790669E-01	4.179413E-04	3.221557E-02	0.0	0.0
47	6	0.0	4.839429E-03	2.365690E-04	4.0	0.0	0.0
48	6	0.0	3.057905E-03	1.96428E-04	5.465557E-04	0.0	0.0
49	6	0.0	1.047737E-04	-1.146737E-04	9.304564L-04	0.0	0.0
50	6	0.0	-2.171677E-03	1.024992E-04	1.301102L-03	0.0	0.0

STIFFNESS VALUE = 1.619210E+4

## R F A L E I C E N V E C T O R S N o .

POINT ID.	TYPE	T1	T2	T3	T4	R2	R3
51	C	-0.0	-2.500452E-02	1.044294E-13	7.129785E-07	0.0	0.0
52	C	0.0	-5.374968E-02	1.749747E-03	5.734120E-03	0.0	0.0
53	C	0.0	-1.056810E-01	1.661571E-04	9.4971E-04	0.0	0.0
54	C	0.0	-1.722552E-01	1.959495E-03	1.282445E-02	0.0	0.0
55	C	0.0	-2.765920E-01	1.955257E-02	1.85014E-02	0.0	0.0
56	C	0.0	-4.222449E-01	2.106439E-03	2.573679E-02	0.0	0.0
57	C	0.0	-9.030307E-01	1.615154E-03	3.0173947E-02	0.0	0.0
58	C	0.0	-8.031693E-01	1.4321915E-04	3.259397E-02	0.0	0.0
59	C	0.0	-5.4956529E-03	2.747510E-04	0.0	0.0	0.0
60	C	0.0	4.017681E-03	2.138012E-04	7.230466E-04	0.0	0.0
61	C	0.0	0.0	-6.796144E-05	1.614456E-03	0.0	0.0
62	C	0.0	-6.5600237E-03	1.764930E-07	1.972949E-03	0.0	0.0
63	C	0.0	-3.0410845E-02	1.97874E-07	5.981581E-02	1.0	0.0
64	C	0.0	-2.039710E-02	2.377812E-05	6.748535E-03	0.0	0.0
65	C	0.0	-1.058427E-01	3.150614E-03	1.135226E-02	0.0	0.0
66	C	0.0	-2.078447E-01	5.556170E-02	1.512627E-02	0.0	0.0
67	C	0.0	-3.49906E-01	3.641675E-03	2.131329E-02	0.0	0.0
68	C	0.0	-4.6793856E-01	7.5494942E-03	2.745499E-02	0.0	0.0
69	C	0.0	-9.684221E-01	2.512345E-03	3.124244E-02	0.0	0.0
70	C	0.0	-8.571020E-01	1.461935E-03	7.326813E-02	0.0	0.0
71	C	0.0	-6.015477E-01	2.144441E-07	2.244375E-03	0.0	0.0
72	C	0.0	-1.650665E-02	-7.399165E-04	3.944555E-03	0.0	0.0
73	C	0.0	-4.00562352E-02	3.015952E-03	5.167044E-02	0.0	0.0
74	C	0.0	-9.737775E-02	4.0112655F-03	6.326837E-03	0.0	0.0
75	C	0.0	-1.573290E-01	6.932635F-07	1.23581F-02	0.0	0.0
76	C	0.0	-2.47111E-01	5.655512E-03	1.77892E-02	0.0	0.0
77	C	0.0	-3.752367E-01	5.422305E-07	2.598795E-02	0.0	0.0
78	C	0.0	-5.404905E-01	4.798898E-03	2.993932E-02	0.0	0.0
79	C	0.0	-7.77931E-01	3.344744E-07	2.325014E-02	0.0	0.0
80	C	0.0	-9.052021E-01	2.377950E-03	5.424744E-02	0.0	0.0
81	C	0.0	-2.137460E-01	5.257577E-07	3.229993E-02	0.0	0.0
82	C	0.0	-1.516709E-02	5.415465E-07	4.265461E-02	0.0	0.0
83	C	0.0	-5.624741E-02	6.074593E-07	7.3303734E-03	0.0	0.0
84	C	0.0	-1.053642E-01	7.014773E-03	1.068354E-02	0.0	0.0
85	C	0.0	-1.936857E-01	9.380747E-03	1.520754E-02	0.0	0.0
86	C	0.0	-7.174577E-01	9.958991E-03	2.077276E-02	0.0	0.0
87	C	0.0	-4.685904E-01	8.214571E-03	2.895196E-02	0.0	0.0
88	C	0.0	-5.407420E-01	5.712047E-03	7.347152E-02	0.0	0.0
89	C	0.0	-9.607775E-01	7.465234E-07	3.466027E-02	0.0	0.0
90	C	0.0	-5.783035E-01	1.52137E-04	0.0	0.0	0.0
91	C	0.0	-4.75165E-03	5.599025E-04	9.349029E-04	0.0	0.0
92	C	0.0	-1.125175E-03	9.635153E-04	9.143204E-07	0.0	0.0
93	C	0.0	-1.655935E-04	-1.134495E-04	2.174325E-02	0.0	0.0
94	C	0.0	-1.066777E-02	7.155293E-04	1.74737E-02	0.0	0.0
95	C	0.0	-1.427044E-02	-8.394398E-04	2.425945E-03	0.0	0.0
96	C	0.0	-1.792019E-02	1.60765F-03	2.827548E-03	0.0	0.0
97	C	0.0	-1.090000E-01	-7.151751E-04	3.347327E-02	0.0	0.0
98	C	0.0	-9.957751E-01	-2.019537E-04	2.299691E-02	0.0	0.0
99	C	0.0	-7.72749E-01	7.347191E-04	3.158026E-02	0.0	0.0
100	C	0.0	-4.780175E-01	8.41053E-04	2.167056E-02	0.0	0.0

FINAL VIBRATION MODES ANALYSTS

REAL F T G E N V E N T O R N o .

POINT NO.	TYPE	T1	T2	T3	T4	R1	R2	R3
1	C	3.0	-2.337938E-07	4.587655E-04	-2.261340E-04	0.0	0.0	0.0
2	G	3.0	5.619747E-04	2.313904E-04	-3.247045E-04	3.0	3.0	3.0
3	C	3.0	6.754257E-03	0.337275E-04	-1.460075E-03	0.0	0.0	0.0
4	G	0.0	3.119792E-02	0.654672E-04	-4.628887E-03	0.0	0.0	0.0
5	C	3.0	9.020034E-02	1.539916E-04	-9.733770E-03	0.0	0.0	0.0
6	G	0.0	1.051802E-01	-2.667d94E-03	-1.5467045E-02	0.0	0.0	0.0
7	C	3.0	3.745487E-01	-6.599255E-03	-1.9205775E-02	0.0	0.0	0.0
8	G	0.0	4.673212E-01	-1.026019E-02	-1.5037648E-02	1.0	1.0	1.0
9	C	3.0	2.945044E-01	-3.178162E-02	-2.469765E-03	0.0	0.0	0.0
10	G	0.0	2.542773E-01	-7.315375E-02	3.414852E-02	0.0	0.0	0.0
11	C	3.0	-1.515710E-03	-1.917125E-04	4.0	4.0	4.0	
12	G	0.0	-1.015239E-03	-1.20457C-04	-1.702647E-04	0.0	0.0	0.0
13	C	0.0	0.0	4.320931E-05	-2.056495E-04	0.0	0.0	0.0
14	G	0.0	3.692244E-03	-2.735395E-05	-1.126138E-07	0.0	0.0	0.0
15	C	0.0	1.052210E-02	3.217939E-04	-3.050516E-03	0.0	0.0	0.0
16	G	0.0	5.579392E-03	-1.676159E-04	-6.484366E-03	0.0	0.0	0.0
17	C	0.0	1.271965E-01	-1.946071E-07	-1.133117E-12	0.0	0.0	0.0
18	G	0.0	2.3564174E-01	-5.111185E-03	-1.563257E-07	0.0	0.0	0.0
19	C	0.0	3.6494656E-01	-1.098837E-02	-1.598249E-02	0.0	0.0	0.0
20	G	0.0	4.693012E-01	-2.06694E-02	-9.522511E-03	0.0	0.0	0.0
21	C	0.0	4.016064E-01	-2.968522E-02	1.272925E-02	0.0	0.0	0.0
22	G	0.0	2.143732E-01	-3.754725E-02	4.49742E-02	0.0	0.0	0.0
23	C	0.0	-5.029744E-03	-3.547321E-04	0.0	0.0	0.0	
24	G	0.0	-3.677232E-07	-2.104693E-04	-5.564665E-04	0.0	0.0	0.0
25	C	0.0	0.0	1.68895E-04	-3.648880E-04	0.0	0.0	0.0
26	G	0.0	1.079876E-02	-7.29704E-04	-2.369997E-03	0.0	0.0	0.0
27	C	0.0	3.6742870E-02	-2.467550E-04	-4.79703E-03	0.0	0.0	0.0
28	G	0.0	8.551973E-02	-7.264397E-03	-3.05387E-03	0.0	0.0	0.0
29	C	0.0	1.653457E-01	-4.0.365475E-07	-1.244277E-04	0.0	0.0	0.0
30	G	0.0	2.0386559E-01	-7.7d60J7E-03	-1.0.484167E-02	0.0	0.0	0.0
31	C	0.0	3.745673E-01	-1.0.325599E-02	-1.261417E-02	0.0	0.0	0.0
32	G	0.0	7.022970E-01	-7.0.144527E-02	7.147494E-04	0.0	0.0	0.0
33	C	0.0	7.2.03752E-01	-2.963893E-02	3.208794E-02	0.0	0.0	0.0
34	G	0.0	3.097517E-02	-3.497724E-07	5.716927E-02	0.0	0.0	0.0
35	C	0.0	-1.0.671905E-02	-6.7n7467E-04	4.0	4.0	4.0	
36	G	0.0	-7.0.000337E-03	-2.457472E-04	-1.247705F-03	0.0	0.0	0.0
37	C	0.0	2.841579E-04	-2.40945E-03	-2.240945E-03	0.0	0.0	0.0
38	G	0.0	1.879389E-02	-2.196309E-02	-7.667945E-03	0.0	0.0	0.0
39	C	0.0	5.4510457E-02	-2.574897E-02	-6.367767E-03	0.0	0.0	0.0
40	G	0.0	1.0.11170E-01	-4.0.16371nE-03	-9.900720E-03	0.0	0.0	0.0
41	C	0.0	1.971921E-01	-6.0.163188E-03	-1.258423E-02	0.0	0.0	0.0
42	G	0.0	2.0.00729E-01	-3.0.29111E-03	-1.252722E-02	0.0	0.0	0.0
43	C	0.0	3.6.013736E-01	-1.0.316045E-02	-6.3.25993JE-02	0.0	0.0	0.0
44	G	0.0	3.4.43269E-01	-1.0.37875E-02	1.2.15447E-02	0.0	0.0	0.0
45	C	0.0	1.732056E-01	-1.0.85162E-02	3.0.23944F-02	0.0	0.0	0.0
46	G	0.0	-1.0.473575E-01	-3.0.073939E-02	5.0.99771E-02	0.0	0.0	0.0
47	C	0.0	-1.0.682576E-02	-4.0.537396E-04	0.0	0.0	0.0	
48	G	0.0	-1.0.2465596E-02	-2.0.87251E-04	-1.0.925886E-07	0.0	0.0	0.0
49	C	0.0	2.28571F-04	-3.0.520365E-03	-4.0.473932E-03	0.0	0.0	0.0
50	G	0.0	-1.0.651197E-02	-2.0.1353939E-02	-4.0.473932E-03	0.0	0.0	0.0

LT FNUAL = 1.035934L+.5

## REAL EIGENVECTORS NO.

POINT #D.	TYPE	T1	T2	T3	R1	R2	R3
61	C	1.0	0.0	7.495825E-02	-4.241570F-03	-8.112707F-03	0.0
62	C	0.0	0.0	1.409987E-01	-5.394392E-01	-1.08636E-02	1.0
63	G	0.0	0.0	2.23269E-01	-6.58763E-03	-1.196445E-02	0.0
64	G	0.0	0.0	2.73940E-01	-8.126989E-07	-8.723950E-03	0.0
65	G	0.0	0.0	7.202053E-01	-1.073454E-02	2.320675F-07	0.0
66	C	0.0	0.0	2.401946E-01	-1.597391E-02	2.442272E-02	0.0
67	C	0.0	0.0	4.94256E-07	-2.51574E-02	5.164876E-02	0.0
68	C	0.0	0.0	-3.659261E-01	-5.91379E-02	6.357647E-02	0.0
69	C	0.0	0.0	-2.059499E-02	-7.321753E-04	1.0	0.0
70	C	0.0	0.0	-1.547521E-02	-5.712375E-04	-2.77673E-03	1.0
71	C	0.0	0.0	2.007937E-02	2.125349E-04	-4.957597E-03	0.0
72	C	0.0	0.0	9.215241E-02	-4.04184E-05	-5.41377E-03	0.0
73	C	0.0	0.0	1.064217E-01	-5.388059E-07	-9.269224E-03	0.0
74	C	0.0	0.0	2.413496E-01	-5.167139E-03	-1.089917E-02	0.0
75	C	0.0	0.0	2.95710E-01	-4.080139E-07	-4.309445E-03	0.0
76	C	0.0	0.0	2.039633E-01	-6.355199E-03	1.196153F-02	0.0
77	C	0.0	0.0	1.0399762E-01	-1.085735F-02	7.597332E-02	0.0
78	C	0.0	0.0	-1.57238E-01	-2.02324E-02	6.165852E-12	0.0
79	C	0.0	0.0	-5.17180E-01	-3.20562E-02	5.9766E-02	0.0
80	C	0.0	0.0	2.127624E-02	-4.044435E-04	-6.717363E-03	0.0
81	C	0.0	0.0	5.19675E-02	2.383935F-03	-9.297573E-03	0.0
82	C	0.0	0.0	1.158452E-01	-5.01275E-03	-1.121076E-02	1.0
83	C	0.0	0.0	1.0499326E-01	-3.659453E-07	-1.254607E-02	0.0
84	C	0.0	0.0	2.636360E-01	-1.126144E-13	-9.399999E-03	0.0
85	C	0.0	0.0	2.97710E-01	1.534695E-03	1.72670E-03	0.0
86	C	0.0	0.0	2.0227846E-01	1.545274E-03	2.217474E-02	0.0
87	C	0.0	0.0	1.2029325E-02	-4.07751E-03	5.02567F-02	0.0
88	C	0.0	0.0	-3.376506E-01	-1.575421F-02	6.94648E-02	0.0
89	C	0.0	0.0	-7.1739870E-01	-2.407339E-02	7.914664F-04	0.0
90	C	0.0	0.0	6.023249E-02	-2.559722F-07	-1.116106E-02	0.0
91	C	0.0	0.0	1.069434E-01	-3.41994E-03	-1.422435E-02	0.0
92	C	0.0	0.0	2.017854E-01	-0.210425E-04	-1.93277E-02	0.0
93	C	0.0	0.0	2.938730E-01	4.357431E-03	-1.72659E-02	0.0
94	C	0.0	0.0	3.571246E-01	1.524950E-02	-9.33379E-03	0.0
95	C	0.0	0.0	3.731037E-01	2.232709E-02	1.535746E-02	0.0
96	C	0.0	0.0	1.069307E-01	1.917035E-02	4.553732E-02	0.0
97	C	0.0	0.0	-2.4207575E-01	1.545853E-03	7.55017E-02	0.0
98	C	0.0	0.0	-7.74252AE-01	-1.634751E-02	8.035294E-02	0.0
99	C	0.0	0.0	-1.891326E-02	-3.649799E-04	0.0	0.0
100	C	0.0	0.0	-1.047477E-02	-1.16376E-03	-1.344785E-07	0.0
101	C	0.0	0.0	3.255757E-04	-2.791251E-03	-2.10490E-03	0.0
102	C	0.0	0.0	3.776496E-04	4.449324E-04	-6.33266E-07	0.0
103	C	0.0	0.0	5.606307E-02	-7.246601E-07	-5.254512E-03	0.0
104	C	0.0	0.0	4.738926E-02	1.570724E-03	-7.265545E-07	0.0
105	C	0.0	0.0	5.053342E-02	-4.73527L-03	-7.42545E-03	0.0
106	C	0.0	0.0	-1.00300E-02	0.0	-1.0490E-03	0.0
107	C	0.0	0.0	-5.417988E-01	-4.436491E-02	5.03912E-02	0.0
111	C	0.0	0.0	-7.412079E-01	-4.312970E-02	6.076920E-02	0.0
112	C	0.0	0.0	-3.45774E-01	-3.15559E-02	5.04155E-02	0.0
113	C	0.0	0.0	-7.96024E-02	-2.96144E-02	6.04214E-02	0.0

L1RNUVALU = 2.09477E+05

## REAL FINGER FACTOR NO. 3

POINT	ID.	IVPF	T1	T2	T3	R1	R2	R3		
1	6	0.0	2.119327E-03	-2.107643E-04	4.0149440E-14	0.0	0.0	0.0		
2	6	0.0	-1.037779E-03	-1.0846394E-05	4.19760E-04	0.0	0.0	0.0		
3	6	0.0	-3.021109E-03	2.756557E-04	1.304297E-03	0.0	0.0	0.0		
4	6	0.0	-2.034367E-02	1.376736E-03	2.0435774E-03	0.0	0.0	0.0		
5	6	0.0	-4.0323314E-12	3.777257E-02	2.6745567E-03	0.0	0.0	0.0		
6	6	0.0	-5.0244454E-02	7.118754E-13	3.120000E-03	0.0	0.0	0.0		
7	6	0.0	-8.0942764E-02	1.235937E-02	5.606140E-03	0.0	0.0	0.0		
8	6	0.0	-1.0547564E-01	2.061355E-02	1.052454E-02	0.0	0.0	0.0		
9	6	0.0	-3.0101924E-01	3.925972E-02	2.0307707E-02	0.0	0.0	0.0		
10	6	0.0	-4.0943795E-01	5.952496E-02	2.376423E-02	0.0	0.0	0.0		
11	6	0.0	-1.054310E-03	7.176491E-05	0.0	0.0	0.0	0.0		
12	6	0.0	1.192448E-07	4.026432F-05	1.0768671E-04	0.0	0.0	0.0		
13	6	0.0	0.0	-2.0593193E-05	2.0977901E-04	0.0	0.0	0.0		
14	6	0.0	-3.0320556E-03	2.0498512F-04	7.500216E-04	0.0	0.0	0.0		
15	6	0.0	-1.0237324E-02	7.0972133E-04	1.319227E-02	0.0	0.0	0.0		
16	6	0.0	-2.043892E-02	2.049321E-03	1.42064E-03	0.0	0.0	0.0		
17	6	0.0	-3.0511931E-03	5.722929E-03	1.276141E-03	0.0	0.0	0.0		
18	6	0.0	-4.0476647E-02	9.521454E-02	1.911502E-02	0.0	0.0	0.0		
19	6	0.0	-6.0403742E-02	1.590727E-02	5.084579E-03	0.0	0.0	0.0		
20	6	0.0	-1.0712202E-01	2.306359E-02	1.024413E-02	0.0	0.0	0.0		
21	6	0.0	-2.0655394E-01	4.472136E-02	2.0525788E-02	0.0	0.0	0.0		
22	6	0.0	-4.0427797E-01	6.642779E-02	2.0708152E-02	0.0	0.0	0.0		
23	6	0.0	2.0011670E-03	7.274561E-05	0.0	0.0	0.0	0.0		
24	6	0.0	2.0011670E-03	7.274561E-05	3.0200333E-04	0.0	0.0	0.0		
25	6	0.0	0.0	-1.01157E-04	5.01233594E-04	0.0	0.0	0.0		
26	6	0.0	0.0	6.0493284E-04	7.0668705E-04	0.0	0.0	0.0		
27	6	0.0	-1.0102957E-02	1.92493E-03	5.0032484E-04	0.0	0.0	0.0		
28	6	0.0	-1.0475234E-02	4.0602040E-03	-1.0515258E-04	0.0	0.0	0.0		
29	6	0.0	-1.0702725E-02	7.789614E-03	-6.0347462E-04	0.0	0.0	0.0		
30	6	0.0	-7.032357E-03	1.362497E-02	2.0125433E-04	0.0	0.0	0.0		
31	6	0.0	-1.08299024E-02	2.255773E-02	7.0497092E-03	0.0	0.0	0.0		
32	6	0.0	-7.0022707E-02	3.400274E-02	1.429066E-02	0.0	0.0	0.0		
33	6	0.0	-2.0076015E-01	5.669075E-02	2.0149386E-02	0.0	0.0	0.0		
34	6	0.0	-7.042560E-11	7.8923601E-02	1.611064AE-02	0.0	0.0	0.0		
35	6	0.0	1.0977300E-03	-2.0760492E-04	0.0	0.0	0.0	0.0		
36	6	0.0	1.0977300E-03	-1.720294E-04	2.0827947E-04	0.0	0.0	0.0		
37	6	0.0	0.0	1.311671E-04	5.018034F-04	0.0	0.0	0.0		
38	6	0.0	-2.0644712E-03	1.375823E-03	-4.0257217E-03	0.0	0.0	0.0		
39	6	0.0	0.0	4.0951855E-14	4.885703E-03	-1.0439129E-03	0.0	0.0	0.0	
40	6	0.0	0.0	1.047422E-02	2.0976247E-02	-2.047036E-03	0.0	0.0	0.0	
41	6	0.0	0.0	7.5524283E-02	1.196734E-02	-3.013116E-02	0.0	0.0	0.0	
42	6	0.0	0.0	2.0504441E-02	1.393275E-02	-2.750556E-02	0.0	0.0	0.0	
43	6	0.0	0.0	5.711055E-02	7.0171741E-02	1.481691E-03	0.0	0.0	0.0	
44	6	0.0	0.0	4.057580E-02	4.0820793E-02	-1.013239E-02	0.0	0.0	0.0	
45	6	0.0	0.0	-1.004704E-01	6.0779139E-02	1.637152E-02	0.0	0.0	0.0	
46	6	0.0	0.0	-2.005434E-01	7.016F853E-02	1.444137E-02	0.0	0.0	0.0	
47	6	0.0	0.0	-4.0023022E-03	-6.0251365E-04	0.0	0.0	0.0		
48	6	0.0	0.0	-3.0139125E-03	-4.0629775E-04	-2.0319750E-04	0.0	0.0	0.0	
49	6	0.0	0.0	2.0002392E-03	-2.01802407E-04	-5.0012407E-04	0.0	0.0	0.0	
50	6	0.0	0.0	0.0	-2.050305F-03	-2.0502721E-03	-2.0502721E-03	0.0	0.0	0.0

EIGENVALUE = 2.094753E+05

## REAL EIGENVECTORS NO.

POINT ID.	TYPE	$r_1$	$T_2$	$T_3$	$r_1$	$T_2$	$T_3$	$r_1$	$T_2$	$T_3$	$r_1$	$T_2$	$T_3$	
51	6	1.0	3.054013E-02	3.470518E-03	-4.785407E-03	-4.785407E-03	3.470518E-03	3.054013E-02	1.0	1.0	1.0	1.0	1.0	1.0
52	6	0.0	6.7240008E-01	9.046446E-01	-6.857210E-01	-6.857210E-01	9.046446E-01	6.7240008E-01	0.0	0.0	0.0	0.0	0.0	0.0
53	6	0.0	1.436917E-01	1.521236F-01	-8.343944E-01	-8.343944E-01	1.521236F-01	1.436917E-01	0.0	0.0	0.0	0.0	0.0	0.0
54	6	0.0	1.560072E-01	2.626832E-02	-7.457579E-03	-7.457579E-03	2.626832E-02	1.560072E-01	0.0	0.0	0.0	0.0	0.0	0.0
55	6	0.0	1.713519E-01	7.39245E-02	-2.181165F-03	-2.181165F-03	7.39245E-02	1.713519E-01	0.0	0.0	0.0	0.0	0.0	0.0
56	6	0.0	1.265590E-01	5.747739E-02	7.0J 87154E-03	7.0J 87154E-03	5.747739E-02	1.265590E-01	0.0	0.0	0.0	0.0	0.0	0.0
57	6	0.0	2.654075E-02	7.292445E-02	1.102970F-02	1.102970F-02	7.292445E-02	2.654075E-02	0.0	0.0	0.0	0.0	0.0	0.0
58	6	0.0	-8.573242E-02	8.126758F-02	1.240641F-02	1.240641F-02	8.126758F-02	-8.573242E-02	0.0	0.0	0.0	0.0	0.0	0.0
59	6	0.0	-0.900535E-02	-9.46637E-02	0.0 J	0.0 J	-9.46637E-02	-0.900535E-02	0.0	0.0	0.0	0.0	0.0	0.0
60	6	0.0	-5.235344E-02	-1.397552E-02	-8.89305E-04	-8.89305E-04	-1.397552E-02	-5.235344E-02	0.0	0.0	0.0	0.0	0.0	0.0
61	6	0.0	0.0	1.356335E-03	-2.349497E-03	-2.349497E-03	1.356335E-03	0.0	0.0	0.0	0.0	0.0	0.0	
62	6	0.0	4.593704E-02	-1.339191E-02	-4.65597E-02	-4.65597E-02	1.339191E-02	4.593704E-02	0.0	0.0	0.0	0.0	0.0	0.0
63	6	0.0	7.630984E-02	4.686504E-02	-7.0J 1803L-03	-7.0J 1803L-03	4.686504E-02	7.630984E-02	0.0	0.0	0.0	0.0	0.0	0.0
64	6	0.0	1.411570E-01	1.381594E-02	-1.24075E-02	-1.24075E-02	1.381594E-02	1.411570E-01	0.0	0.0	0.0	0.0	0.0	0.0
65	6	0.0	2.1570431E-01	2.0J 62975E-02	-1.441154E-02	-1.441154E-02	2.0J 62975E-02	2.1570431E-01	0.0	0.0	0.0	0.0	0.0	0.0
66	6	0.0	2.7935621E-01	3.0J 39153E-02	-1.240924F-02	-1.240924F-02	3.0J 39153E-02	2.7935621E-01	0.0	0.0	0.0	0.0	0.0	0.0
67	6	0.0	3.72693E-01	4.0J 24456E-02	-0.029456E-03	-0.029456E-03	4.0J 24456E-02	3.72693E-01	0.0	0.0	0.0	0.0	0.0	0.0
68	6	0.0	4.597075E-01	6.5J 37612F-02	3.253971E-03	3.253971E-03	6.5J 37612F-02	4.597075E-01	0.0	0.0	0.0	0.0	0.0	0.0
69	6	0.0	1.546172E-01	7.0J 74241E-02	-8.94407L-03	-8.94407L-03	7.0J 74241E-02	1.546172E-01	0.0	0.0	0.0	0.0	0.0	0.0
70	6	0.0	3.92442E-02	3.269735E-02	1.128897E-02	1.128897E-02	3.269735E-02	3.92442E-02	0.0	0.0	0.0	0.0	0.0	0.0
71	6	0.0	3.979107E-02	1.066919E-02	-9.379128E-04	-9.379128E-04	1.066919E-02	3.979107E-02	0.0	0.0	0.0	0.0	0.0	0.0
72	6	0.0	8.62493E-02	1.0J 02949F-02	-5.420656L-03	-5.420656L-03	1.0J 02949F-02	8.62493E-02	0.0	0.0	0.0	0.0	0.0	0.0
73	6	0.0	1.612491E-01	6.945455E-03	-1.312526E-02	-1.312526E-02	6.945455E-03	1.612491E-01	0.0	0.0	0.0	0.0	0.0	0.0
74	6	0.0	2.650067E-01	1.6J 0J 351E-02	-2.131053E-02	-2.131053E-02	1.6J 0J 351E-02	2.650067E-01	0.0	0.0	0.0	0.0	0.0	0.0
75	6	0.0	3.751125E-01	2.4J 896931F-02	-2.618895E-02	-2.618895E-02	2.4J 896931F-02	3.751125E-01	0.0	0.0	0.0	0.0	0.0	0.0
76	6	0.0	4.601574E-01	4.523911E-02	-1.0J 24147E-02	-1.0J 24147E-02	4.523911E-02	4.601574E-01	0.0	0.0	0.0	0.0	0.0	0.0
77	6	0.0	4.80775AE-01	6.1J 14355E-02	-1.914655E-02	-1.914655E-02	6.1J 14355E-02	4.80775AE-01	0.0	0.0	0.0	0.0	0.0	0.0
78	6	0.0	4.737776E-01	7.2J 74935E-02	-1.502726E-02	-1.502726E-02	7.2J 74935E-02	4.737776E-01	0.0	0.0	0.0	0.0	0.0	0.0
79	6	0.0	3.64591E-01	8.3J 6304F-02	7.151239E-03	7.151239E-03	8.3J 6304F-02	3.64591E-01	0.0	0.0	0.0	0.0	0.0	0.0
80	6	0.0	2.915260E-01	8.0J 17253F-02	1.0J 14973E-02	1.0J 14973E-02	8.0J 17253F-02	2.915260E-01	0.0	0.0	0.0	0.0	0.0	0.0
81	6	0.0	2.618921E-01	2.0J 1197E-02	-2.2652JF-02	-2.2652JF-02	2.0J 1197E-02	2.618921E-01	0.0	0.0	0.0	0.0	0.0	0.0
82	6	0.0	3.192041E-01	1.65J 913E-02	-3.12073AE-02	-3.12073AE-02	1.65J 913E-02	3.192041E-01	0.0	0.0	0.0	0.0	0.0	0.0
83	6	0.0	4.9442854E-01	2.045913F-02	-4.499581E-02	-4.499581E-02	2.045913F-02	4.9442854E-01	0.0	0.0	0.0	0.0	0.0	0.0
84	6	0.0	5.237240E-01	4.0J 9844F-02	-5.055333E-02	-5.055333E-02	4.0J 9844F-02	5.237240E-01	0.0	0.0	0.0	0.0	0.0	0.0
85	6	0.0	4.031270E-01	7.0J 37416E-02	-5.45701E-02	-5.45701E-02	7.0J 37416E-02	4.031270E-01	0.0	0.0	0.0	0.0	0.0	0.0
86	6	0.0	1.00J 0J 7E+00	9.0J 0J 934E-02	-3.77779E-02	-3.77779E-02	9.0J 0J 934E-02	1.00J 0J 7E+00	0.0	0.0	0.0	0.0	0.0	0.0
87	6	0.0	9.515J 53E-01	1.0J 52512E-01	-1.57779E-02	-1.57779E-02	1.0J 52512E-01	9.515J 53E-01	0.0	0.0	0.0	0.0	0.0	0.0
88	6	0.0	7.0J 03839E-01	9.0J 3215JF-02	1.0J 19712E-03	1.0J 19712E-03	9.0J 3215JF-02	7.0J 03839E-01	0.0	0.0	0.0	0.0	0.0	0.0
89	6	0.0	5.077301E-01	9.4U 8256F-02	7.409124E-03	7.409124E-03	9.4U 8256F-02	5.077301E-01	0.0	0.0	0.0	0.0	0.0	0.0
90	6	0.0	-6.472J 39E-03	-1.59J 123E-03	5.0J	5.0J	-1.59J 123E-03	-6.472J 39E-03	0.0	0.0	0.0	0.0	0.0	0.0
91	6	0.0	-2.04J 1496E-03	-4.12339E-04	-5.427409E-04	-5.427409E-04	-4.12339E-04	-2.04J 1496E-03	0.0	0.0	0.0	0.0	0.0	0.0
92	6	0.0	-5.442562E-04	-4.58134E-04	-1.42273E-03	-1.42273E-03	-4.58134E-04	-5.442562E-04	0.0	0.0	0.0	0.0	0.0	0.0
93	6	0.0	6.505665E-03	2.0J 22497L-03	-3.470936E-03	-3.470936E-03	2.0J 22497L-03	6.505665E-03	0.0	0.0	0.0	0.0	0.0	0.0
94	6	0.0	8.715293E-03	1.0J 3117E-03	-2.192733E-03	-2.192733E-03	1.0J 3117E-03	8.715293E-03	0.0	0.0	0.0	0.0	0.0	0.0
95	6	0.0	2.0J 62497E-03	4.0J 54937E-02	-2.5554937E-03	-2.5554937E-03	4.0J 54937E-02	2.0J 62497E-03	0.0	0.0	0.0	0.0	0.0	0.0
96	6	0.0	4.226245E-02	1.0J 43357F-02	-5.49417UE-02	-5.49417UE-02	1.0J 43357F-02	4.226245E-02	0.0	0.0	0.0	0.0	0.0	0.0
97	6	0.0	3.410344E-01	9.0J 37423E-02	3.0J 93522E-03	3.0J 93522E-03	9.0J 37423E-02	3.410344E-01	0.0	0.0	0.0	0.0	0.0	0.0
98	6	0.0	1.0J 8321JF-01	8.71581E-02	1.0J 6033AE-02	1.0J 6033AE-02	8.71581E-02	1.0J 8321JF-01	0.0	0.0	0.0	0.0	0.0	0.0
99	6	0.0	-5.553902E-01	8.44117E-02	0.549446E-03	0.549446E-03	8.44117E-02	-5.553902E-01	0.0	0.0	0.0	0.0	0.0	0.0
100	6	0.0	-3.115200E-01	6.531839E-02	7.3J 2473AF-02	7.3J 2473AF-02	6.531839E-02	-3.115200E-01	0.0	0.0	0.0	0.0	0.0	0.0

EIGENVALUE = 7.20355E+05

## DRAFT LITERATURE VECTOR NO. \*

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
1	C	0.0	-6.42544E-02	-2.49304E-02	-2.498540E-03	2.905611E-03	0.0
2	C	0.0	-5.954945E-02	-5.954945E-02	2.378669E-03	0.0	0.0
3	C	0.0	-4.333951E-02	-4.168294E-02	7.501408E-03	0.0	0.0
4	C	0.0	-1.415625E-01	4.224821E-03	1.622148E-02	0.0	0.0
5	C	0.0	-7.584919E-01	1.371751E-02	2.367764E-02	0.0	0.0
6	C	0.0	-4.515293E-01	2.604149E-02	2.73816F-02	0.0	0.0
7	C	0.0	-6.020354E-01	3.454545E-02	9.025186E-03	0.0	0.0
8	C	0.0	-4.971654E-01	4.015792E-02	-0.671642E-02	0.0	0.0
9	C	0.0	-7.589676E-02	1.465652E-02	-5.659652E-02	0.0	0.0
10	C	0.0	-7.30244E-01	-2.330254E-02	-4.025464E-02	0.0	0.0
11	C	0.0	9.053346E-03	5.487374E-04	9.932249E-04	0.0	0.0
12	C	0.0	6.595371E-03	3.146698E-04	9.932249E-04	0.0	0.0
13	C	0.0	-1.927227E-02	1.789549E-03	1.674355E-03	0.0	0.0
14	C	0.0	-7.87505E-02	2.173579E-03	4.505396E-03	0.0	0.0
15	C	0.0	-1.884844E-01	8.223955E-02	1.611494E-02	0.0	0.0
16	C	0.0	-7.314666E-01	1.754375E-02	1.959332E-02	0.0	0.0
17	C	0.0	-4.654799E-01	2.797759E-02	1.481507E-02	0.0	0.0
18	C	0.0	-5.051296E-01	3.589389E-02	-1.982135E-03	0.0	0.0
19	C	0.0	-3.211049E-01	6.736771E-02	-3.294717E-02	0.0	0.0
20	C	0.0	6.574744E-02	3.557734E-02	-2.21346E-02	0.0	0.0
21	C	0.0	0.014620E-01	-4.19245E-02	-2.034062E-02	0.0	0.0
22	C	0.0	1.253009E-02	0.482933E-04	0.0	0.0	0.0
23	C	0.0	1.444618E-02	5.531365E-04	2.211595E-02	0.0	0.0
24	C	0.0	0.0	-5.696755E-04	4.012662E-03	0.0	0.0
25	C	0.0	-3.060152E-02	4.068997E-03	7.710295E-03	0.0	0.0
26	C	0.0	-1.1194773E-01	7.745529E-02	1.118456E-02	0.0	0.0
27	C	0.0	-2.011202E-01	1.357871E-02	1.474238E-02	0.0	0.0
28	C	0.0	-7.244977E-01	2.101678E-02	1.415794E-02	0.0	0.0
29	C	0.0	-3.997636E-01	2.77971E-02	2.537087E-02	0.0	0.0
30	C	0.0	-3.627314E-01	2.357431E-02	-1.2494158E-02	0.0	0.0
31	C	0.0	-1.524245E-01	1.487709E-02	-3.8u61E-02	0.0	0.0
32	C	0.0	1.652790E-01	-1.659335E-02	-3.777592E-02	0.0	0.0
33	C	0.0	2.033741E-01	-5.64874E-02	1.836241E-02	0.0	0.0
34	C	0.0	3.019753E-02	3.818157E-04	u.0	0.0	0.0
35	C	0.0	2.227723E-02	1.952972E-04	3.573292E-02	0.0	0.0
36	C	0.0	-3.253597E-04	6.591241E-03	0.0	0.0	0.0
37	C	0.0	-4.941689E-02	7.312679E-03	7.98017F-03	0.0	0.0
38	C	0.0	-1.201844E-01	1.114497E-02	1.01932E-02	0.0	0.0
39	C	0.0	-2.009332E-01	1.5609209E-02	1.124599E-02	0.0	0.0
40	C	0.0	-2.8u74745E-01	2.231609E-02	7.445315E-03	0.0	0.0
41	C	0.0	-3.625218E-01	3.283598E-C9	-3.132007F-03	0.0	0.0
42	C	0.0	-2.224961E-01	2.974099E-03	-3.272004E-02	0.0	0.0
43	C	0.0	-2.144514E-01	3.187993E-02	-1.44281F-02	0.0	0.0
44	C	0.0	1.773039E-01	-6.217691E-02	2.510777E-02	0.0	0.0
45	C	0.0	1.366850E-01	-1.659875E-04	5.515782E-04	0.0	0.0
46	C	0.0	2.731655E-02	-1.52035E-04	3.708849E-07	0.0	0.0
47	C	0.0	-2.487762E-04	7.171026E-03	7.171026E-03	0.0	0.0
48	C	0.0	-2.5379474E-02	-7.332317E-07	5.524470E-05	0.0	0.0

FIRENVALUE = 7.0203E55E+05

## REAL GENERATOR NO.

POINT	ID.	TYPE	T1	T2	R1	R2	R3	
51	C	0.0	-1.076797E-01	1.323479E-02	7.697471E-03	0.0		
52	C	0.0	-1.671706E-01	1.953331E-02	6.366713E-03	1.0		
53	C	0.0	-2.027741E-01	2.029495E-02	2.445476E-04	0.0		
54	C	0.0	-1.812523E-01	2.47397E-02	-1.02994E-02	0.0		
55	C	0.0	-8.31042E-02	1.367574E-02	-2.114917E-02	0.0		
56	C	0.0	2.0817879E-02	-1.649235E-04	-1.92182E-02	0.0		
57	C	0.0	9.84744E-02	-3.161392E-02	1.361184E-02	1.0		
58	C	0.0	-2.0893119E-02	-6.97516E-02	7.54481AE-02	0.0		
59	C	0.0	2.413705E-02	1.374553E-02	0.0	0.0		
60	C	0.0	2.056773E-02	1.369335E-03	3.023650E-03	0.0		
61	C	0.0	1.0	1.647071E-03	7.255454E-03	0.0		
62	C	0.0	-1.075557E-02	6.710231E-03	4.52279E-02	0.0		
63	C	0.0	-7.277337E-02	1.594149E-02	3.349466E-03	0.0		
64	C	0.0	-4.0045302E-01	2.124146E-02	+1.15321E-04	0.0		
65	C	0.0	-1.055141E-01	2.655929E-02	-6.77076E-03	0.0		
66	C	0.0	-6.073945E-02	2.672224E-02	-1.51447E-02	0.0		
67	C	0.0	2.492646E-02	2.191474E-02	-1.776502E-02	0.0		
68	C	0.0	8.597776E-02	4.172915E-03	-1.365180E-03	0.0		
69	C	0.0	-1.715871E-02	2.526974E-02	3.496147E-02	0.0		
70	C	0.0	-2.353945E-01	-5.663149E-02	4.78748E-02	0.0		
71	C	0.0	1.712567E-02	1.260979E-02	3.742406E-04	0.0		
72	C	0.0	2.785772E-02	1.294224E-02	1.173811E-12	0.0		
73	C	0.0	1.161629E-02	2.207244E-02	-2.150490E-03	0.0		
74	C	0.0	1.6595361E-02	3.053522E-02	-8.171243E-02	0.0		
75	C	0.0	4.05233276E-02	3.660954E-02	-1.387179E-02	0.0		
76	C	0.0	1.0	3.695E-01	3.925223E-02	-1.43712E-02	0.0	
77	C	0.0	1.428092E-01	3.4810244E-02	-1.016325E-02	0.0		
78	C	0.0	8.0417389E-02	1.537538E-02	2.114368E-02	0.0		
79	C	0.0	-1.445183E-01	-1.517409E-02	3.45024E-12	0.0		
80	C	0.0	-2.0143991E-01	-3.744434E-02	7.30687E-02	0.0		
81	C	0.0	5.04219E-01	8.422973E-02	-2.00574E-02	0.0		
82	C	0.0	4.920545E-01	7.247439E-02	-7.162994E-02	0.0		
83	C	0.0	2.572491E-01	4.017739E-02	-4.260774E-02	0.0		
84	C	0.0	6.032162E-01	9.572477E-02	-4.30AF3AF-02	0.0		
85	C	0.0	0.5244897E-01	1.0100442E-01	-4.665239E-02	0.0		
86	C	0.0	0.5244897E-01	1.020239E-01	-1.961525E-02	0.0		
87	C	0.0	4.284373E-01	9.432495E-02	2.406607E-02	0.0		
88	C	0.0	5.095776E-02	7.206474E-02	6.555269E-02	0.0		
89	C	0.0	-5.735966E-01	-1.873763E-02	7.015157E-02	0.0		
90	C	0.0	3.0427199E-02	6.512242E-04	0.0	0.0		
91	C	0.0	2.28094E-02	3.171276E-02	2.114270E-03	0.0		
92	C	0.0	-1.0809259E-02	5.367181E-02	4.286961E-02	0.0		
93	C	0.0	4.232925E-02	2.587952F-03	9.064571E-13	0.0		
94	C	0.0	-6.017357E-02	0.431437F-02	7.4435574E-03	0.0		
95	C	0.0	-6.121259E-02	2.941926F-02	1.474188E-02	0.0		
96	C	0.0	-4.515894E-02	1.26549E-02	4.450674E-02	0.0		
97	C	0.0	-8.103970E-01	-4.5244989E-02	5.061123E-02	0.0		
98	C	0.0	-3.05491E-01	-6.150494E-02	4.605191E-02	0.0		
99	C	0.0	6.1165237E-01	-7.736531E-02	3.7A1044E-02	0.0		
100	C	0.0	1.006080E+00	-4.243619E-02	4.245659E-02	0.0		

## FINAL VIBRATION TURFS ANALYSIS

F1GENVNUF = 8.120997E+05

REFAL FIVENESS TURFS NO.

POINT ID.	TYPE	T1	T2	T3	RL	R2
1	G	J..J	..	2.643971E-03	-6.256512E-04	3.886738E-04
2	G	0..0	0..0	-6.64139E-04	-10.32972F-04	3.063942E-04
3	G	0..0	0..0	-5.2491E-03	-7.903675E-05	9.752004E-04
4	G	0..0	0..0	-1.016235E-01	6.15563F-04	2.434929E-07
5	G	0..0	0..0	-4.675139E-02	1.011732E-02	4.173677E-03
6	G	0..0	0..0	-8.013794E-02	0.97554E-02	3.752166E-07
7	G	0..0	0..0	-8.813731E-02	6.37541E-03	-1.212172F-03
8	G	0..0	0..0	-3.718762E-02	6.997435L-03	-8.352765E-03
9	G	0..0	0..0	3.012140E-02	6.312949E-07	+4.406654E-03
10	G	0..0	0..0	5.2405649E-04	5.449545F-07	1.036455E-02
11	G	0..0	0..0	1.012857E-03	7.59554E-05	0..0
12	G	0..0	0..0	9.17748E-04	9.087559E-05	1.248175E-14
13	G	0..0	0..0	0..0	-6.348015E-05	2.005470F-04
14	G	0..0	0..0	-7.49745E-03	1.13223E-04	0.04992E-04
15	G	0..0	0..0	-1.054560E-03	1.064517E-04	1.529992E-03
16	G	0..0	0..0	-2.767423E-02	7.752235E-04	2.817522E-03
17	G	0..0	0..0	-5.3223L-02	1.301121E-03	3.51077E-07
18	G	0..0	0..0	-7.63492E-02	3.665516E-03	1.774094E-03
19	G	0..0	0..0	-6.221673E-02	5.349378F-07	-4.4514485E-03
20	G	0..0	0..0	3.45230E-03	6.24754F-03	-9.524005F-02
21	G	0..0	0..0	0.038608E-02	7.669313E-03	-6.55510AE-04
22	G	0..0	0..0	-2.057927E-02	1.312397L-C2	2.67517E-02
23	G	0..0	0..0	2.054814E-03	1.451045E-04	0..0
24	G	0..0	0..0	1.954791E-03	0.477637E-05	0.377409F-04
25	G	0..0	0..0	0..0	-5.296753E-05	5.464370E-04
26	G	0..0	0..0	-2.459012E-03	0.480511E-04	1.150597E-J3
27	G	0..0	0..0	-1.74104E-02	7.261637E-04	2.72348E-03
28	G	0..0	0..0	-3.71742E-02	1.232447F-02	3.142443E-03
29	G	0..0	0..0	-6.031834E-02	1.694029E-03	2.397468F-13
30	G	0..0	0..0	-6.0396399E-02	2.625171E-02	-1.375041E-03
31	G	0..0	0..0	-2.423242E-02	4.762394F-05	-8.14543C-03
32	G	0..0	0..0	5.171474E-02	8.41593E-03	-8.979417E-03
33	G	0..0	0..0	7.852066E-02	1.326073F-02	5.91112F-03
34	G	0..0	0..0	-4.904616E-02	2.169951F-02	-3.70147E-02
35	G	0..0	0..0	5.5875147E-13	3.285844L-04	0..0
36	G	0..0	0..0	4..0..-77383E-03	1.876173E-04	6.191817E-04
37	G	0..0	0..0	0..0	-1.930275E-04	1.093175E-03
38	G	0..0	0..0	-9.05371E-03	9.072518F-04	1.637067E-13
39	G	0..0	0..0	-2.455929E-02	7.635737E-14	2.967515E-13
40	G	0..0	0..0	-4.94613E-02	2.761125F-14	3.178644F-U3
41	G	0..0	0..0	-6.234120E-02	-1.069363E-04	2.723090E-04
42	G	0..0	0..0	-4.095923E-02	1.091492E-03	-6.164744E-U3
43	G	0..0	0..0	-2.617022E-02	5.169726F-03	-1.238811E-12
44	G	0..0	0..0	-1.067397E-01	1.372607E-J2	-8.055842F-03
45	G	0..0	0..0	9.26316E-02	1.96433L-02	1.71132E-02
46	G	0..0	0..0	-7.63281E-02	2.095777F-02	7.571760F-02
47	G	0..0	0..0	1.013682E-02	5.377949E-04	0..0
48	G	0..0	0..0	0.299844E-04	4.65547E-04	1.155163E-03
49	G	0..0	0..0	1.0..-4.0..-7	1.731415F-04	1.943452L-03
50	G	0..0	0..0	-9.0..-1.0..-7	6.369455E-04	7.748005E-03

LICENVALUE = A.120999E+05

## REFAL LICENVENTOR NO.

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
1.1	6	0.0	-4.716729E-02	-1.108324E-02	4.6743A3F-07	0.0	0.0
62	6	0.0	-6.828869E-02	-7.316385E-02	2.57396E-07	0.0	0.0
4.3	6	0.0	-5.349549E-02	-4.342595E-02	-7.601394E-07	0.0	0.0
54	6	0.0	-6.533056E-03	-5.415745E-04	-1.256647E-02	0.0	0.0
55	6	0.0	9.652073E-02	9.097769E-03	-1.7489A7F-02	0.0	0.0
66	6	0.0	1.71909E-01	2.129426E-02	-2.943747F-07	0.0	0.0
67	6	0.0	1.631401E-02	2.943017E-02	2.257350E-02	0.0	0.0
54	6	0.0	-1.19445E-01	1.971779F-02	3.021096E-J2	0.0	0.0
59	6	0.0	1.212477E-02	-9.12714E-05	0.0	0.0	0.0
60	6	0.0	9.056494E-03	-7.757375E-04	1.468415E-03	0.0	0.0
61	6	0.0	7.0E-02	-1.369111E-02	3.41251E-13	0.0	0.0
62	6	0.0	-2.229523E-02	1.191527E-04	5.927261E-07	0.0	0.0
67	6	0.0	-4.343101E-02	-7.173490E-02	6.77742E-03	0.0	0.0
64	6	0.0	-1.016246E-01	-1.075672E-02	9.12765E-14	0.0	0.0
65	6	0.0	-6.442316E-02	-1.316254E-02	-9.78735E-03	0.0	0.0
66	6	0.0	4.64944E-02	-1.504949E-03	-2.149551F-02	0.0	0.0
67	6	0.0	1.825981E-01	1.054915E-02	-2.935677E-02	0.0	0.0
68	6	0.0	2.470524E-01	7.387659E-02	-2.740803E-03	0.0	0.0
69	6	0.0	1.194412E-01	4.055474E-02	2.119659E-02	0.0	0.0
70	6	0.0	-1.424627E-01	3.64494E-02	4.566517E-02	0.0	0.0
71	6	0.0	-7.025235E-02	-7.90725E-03	1.731515E-14	0.0	0.0
72	6	0.0	-1.351730E-01	-2.103759E-02	-3.167232E-04	0.0	0.0
73	6	0.0	-1.869072E-01	-2.361304E-02	8.474799E-03	0.0	0.0
74	6	0.0	-1.769096E-01	-2.976709E-02	-2.921397E-03	0.0	0.0
75	6	0.0	-6.795522E-02	-2.885599E-02	-2.17746E-02	0.0	0.0
76	6	0.0	1.322554E-01	6.310379E-04	-3.494521E-02	0.0	0.0
77	6	0.0	3.266700E-01	5.241715E-02	-2.916244E-02	0.0	0.0
78	6	0.0	0.538909E-01	5.26797E-02	2.196714F-03	0.0	0.0
79	6	0.0	1.46974E-01	5.722913E-02	3.837895E-02	0.0	0.0
80	6	0.0	-1.0715302E-01	5.4562897F-02	2.9562395E-02	0.0	0.0
81	6	0.0	-1.008000E+00	6.310379E-04	4.461359E-02	0.0	0.0
82	6	0.0	-9.925504E-01	-1.308105E-01	5.127738E-02	0.0	0.0
83	6	0.0	-9.279035E-01	-1.334199F-01	2.480084E-02	0.0	0.0
84	6	0.0	-6.580681E-01	-1.308172F-01	-2.578474E-02	0.0	0.0
85	6	0.0	-9.274648F-02	-7.576013E-02	-9.749493E-02	0.0	0.0
86	6	0.0	5.794506E-01	7.088051E-02	-9.439055E-02	0.0	0.0
87	6	0.0	8.229810E-01	1.061524F-01	-4.7316n6E-02	0.0	0.0
88	6	0.0	6.437174E-01	1.091936F-01	2.713997E-02	0.0	0.0
89	6	0.0	3.045584E-02	7.970770E-02	5.51757E-02	0.0	0.0
90	6	0.0	1.244931E-02	-2.47126E-04	0.0	0.0	0.0
91	6	0.0	9.691557E-03	6.439477E-04	1.266979E-02	0.0	0.0
92	6	0.0	1.127845E-03	9.691555E-04	2.626249E-03	0.0	0.0
93	6	0.0	-1.088364E-02	-7.703225E-03	4.756575E-03	0.0	0.0
94	6	0.0	-1.178094E-02	6.729313E-04	3.786129E-02	0.0	0.0
95	6	0.0	-2.312192E-02	-3.902276E-03	7.346664E-03	0.0	0.0
96	6	0.0	-2.317368E-02	-7.952307E-03	7.346664E-02	0.0	0.0
102	6	0.0	-2.903496E-01	1.211750E-02	4.584274E-02	0.0	0.0
103	6	0.0	-1.055494E-01	1.352614E-02	4.473238AF-02	0.0	0.0
104	6	0.0	-9.924469E-02	2.17615E-02	3.403250F-02	0.0	0.0
105	6	0.0	-3.19549E-02	2.146924E-02	7.426249E-02	0.0	0.0
107	6	0.0	0.0	2.114921E-02	0.0	0.0	0.0
111	6	0.0	0.0	0.0	0.0	0.0	0.0
112	6	0.0	0.0	0.0	0.0	0.0	0.0
113	6	0.0	0.0	0.0	0.0	0.0	0.0
114	6	0.0	0.0	0.0	0.0	0.0	0.0

EIGENVALUE = 1.767250E+36

## DEAL F T G E N V L C A T I O N N N o .

6

POINT ID.	TYPE	T1	T2	R1	R2	R3
1	C	1.0	0.0	-2.276291E-01	1.345192E-01	0.0
2	C	1.0	0.0	-1.93329E-01	2.654123E-02	0.0
3	C	1.0	0.0	-4.26831E-02	3.927687E-03	0.0
4	C	0.0	0.0	-7.01420E-03	9.67759E-04	0.0
5	C	0.0	0.0	-1.121184E-02	1.73535E-07	2.099200E-04
6	C	1.0	0.0	-9.747662E-03	1.45582E-03	-2.559985E-04
7	C	1.0	0.0	-4.01621E-02	8.24771E-04	-7.232549E-04
8	C	1.0	0.0	-7.753349E-03	1.911233E-04	-6.64774E-04
9	C	1.0	0.0	-4.83120E-03	-1.85331E-04	3.21133E-04
10	C	0.0	0.0	-5.09549E-04	5.02252F-05	7.7859E7E-04
11	C	0.0	0.0	-3.59325E-03	-2.479750E-04	0.0
12	C	0.0	0.0	-2.723646E-02	-7.907511E-04	-4.474922E-04
13	C	0.0	0.0	-4.930217E-03	1.174128E-03	-1.147456E-03
14	C	0.0	0.0	-5.059742E-02	1.174128E-03	2.835896E-04
15	C	0.0	0.0	-7.317494E-03	7.415421E-04	2.152772E-04
16	C	0.0	0.0	-7.729134E-02	8.513534E-04	-7.570764E-05
17	C	0.0	0.0	-5.228513E-03	8.123315E-04	-4.277191E-04
18	C	0.0	0.0	-1.018939E-04	5.292592E-04	-6.926980E-04
19	C	0.0	0.0	-4.896314E-02	4.672374E-03	-2.592118E-04
20	C	0.0	0.0	-3.542224E-02	-6.294944E-05	5.789103E-04
21	C	0.0	0.0	-1.747130E-02	7.466377E-04	5.199630E-04
22	C	0.0	0.0	-7.453751E-04	5.238295E-04	0.0
23	C	0.0	0.0	-6.4669214E-04	5.712947E-04	1.920546E-04
24	C	0.0	0.0	-1.014577E-03	-7.37175F-04	6.263730E-04
25	C	0.0	0.0	-3.089235E-03	3.738673E-04	3.11219E-04
26	C	0.0	0.0	-5.053355E-03	5.051451E-04	1.946483E-04
27	C	0.0	0.0	-4.093425E-03	5.151846E-04	4.029348E-05
28	C	0.0	0.0	-3.953355E-03	6.484959E-04	-2.0297741E-04
29	C	0.0	0.0	-9.067742E-04	5.557564E-04	-5.049222E-04
30	C	0.0	0.0	-3.439905E-03	7.096674E-04	-5.049621E-04
31	C	0.0	0.0	-5.310111E-03	9.236156E-05	9.04044E-05
32	C	0.0	0.0	-4.057413E-03	7.356471E-05	6.5d697E-04
33	C	0.0	0.0	-1.082568E-03	4.297911E-04	-1.7436690E-05
34	C	0.0	0.0	-1.052446E-03	-1.641249E-04	0.0
35	C	0.0	0.0	-1.043799E-03	-1.632955E-04	1.851455E-04
36	C	0.0	0.0	0.0	-1.01394E-04	1.907769E-04
37	C	0.0	0.0	-1.427691E-02	2.379582E-04	1.41057E-04
38	C	0.0	0.0	-2.027114E-02	7.924147E-04	4.1629nAF-05
39	C	0.0	0.0	-2.092357E-02	4.633712E-04	-1.339764E-04
40	C	0.0	0.0	-3.027322E-02	4.483101E-04	-3.5AU71F-04
41	C	0.0	0.0	-2.073321E-03	7.618790E-04	-4.096555E-04
42	C	0.0	0.0	-5.4768911E-02	1.825573E-04	-2.714877E-04
43	C	0.0	0.0	-4.022834E-02	5.637719E-04	4.124951F-04
44	C	0.0	0.0	-9.022834E-02	1.509933E-04	5.474560E-04
45	C	0.0	0.0	-9.074177E-02	4.092755E-04	-5.091146E-05
46	C	0.0	0.0	-2.028752E-02	-7.452672E-05	0.0
47	C	0.0	0.0	-4.0000399E-02	-1.279911E-05	7.249777E-05
48	C	0.0	0.0	-4.035614E-02	-4.01101E-04	0.0
49	C	0.0	0.0	-2.0347077E-02	2.807379E-J5	0.0

FIGURE VIII UC = 1.0757355E+06

## REAL ELEMENT GENERATION NO.

6

POINT NO.	TYPE	T1	T2	T3	R1	R2	R3
51	C	0.0	0.0	-6.303715E-04	2.412269E-04	-9.313322E-05	0.0
52	C	0.0	0.0	2.861433E-04	2.771722E-04	-2.746272E-04	0.0
53	C	0.0	0.0	2.883434E-04	2.762475E-04	-4.011344E-04	0.0
54	C	0.0	0.0	5.347745E-04	1.376213E-04	-3.0735759E-04	0.0
55	C	0.0	0.0	5.927574E-04	2.355931E-05	1.3272485E-04	0.0
56	C	0.0	0.0	7.0117233E-03	-1.478643E-04	6.0117274E-04	0.0
57	C	0.0	0.0	-4.4532902E-04	-5.069742E-05	2.446792E-04	0.0
58	C	0.0	0.0	1.0271103E-04	4.946067E-04	-1.926377E-04	0.0
59	C	0.0	0.0	3.0752478E-04	-1.511332E-06	0.0	0.0
60	C	0.0	0.0	2.742741E-04	2.0500952E-07	3.792269E-07	0.0
61	C	0.0	0.0	0.0	2.95551E-05	2.7647930E-05	0.0
62	C	0.0	0.0	0.0	3.9452E-05	-1.0512352E-05	0.0
63	C	0.0	0.0	0.0	8.762944E-05	-1.0911714E-04	0.0
64	C	0.0	0.0	2.6656109E-03	1.27193F-04	-3.769221F-04	0.0
65	C	0.0	0.0	5.0647165E-04	1.069039E-04	-3.672976E-04	0.0
66	C	0.0	0.0	6.511142E-03	6.537349E-05	-2.721016E-05	0.0
67	C	0.0	0.0	4.664490E-04	-2.584670E-04	5.542912E-04	0.0
68	C	0.0	0.0	7.059306E-04	-5.700063E-04	6.603742E-04	0.0
69	C	0.0	0.0	-8.657901E-04	-5.200494E-04	-2.456713E-05	0.0
70	C	0.0	0.0	1.06960E-04	-3.711442E-05	-4.758600E-04	0.0
71	C	0.0	0.0	1.0150691E-04	-4.259272E-05	-2.13944E-05	0.0
72	C	0.0	0.0	3.040657E-04	-3.865543E-05	-1.544509E-04	0.0
73	C	0.0	0.0	1.092531E-03	-1.713523F-04	-7.410190E-04	0.0
74	C	0.0	0.0	4.0427952E-03	-7.322925E-03	-4.701937E-04	0.0
75	C	0.0	0.0	6.344679E-03	7.05591E-06	-1.92053E-04	0.0
76	C	0.0	0.0	5.0147179E-04	-6.670452E-04	5.0161692E-04	0.0
77	C	0.0	0.0	5.026900E-04	-1.017621E-03	1.51572E-07	0.0
78	C	0.0	0.0	-3.477334E-03	1.554183F-03	5.39097E-04	0.0
79	C	0.0	0.0	-2.546172E-03	-1.655585E-03	-2.750792E-04	0.0
80	C	0.0	0.0	1.529419E-04	-1.219945E-03	-1.047320E-03	0.0
81	C	0.0	0.0	-1.015777E-02	-2.576557F-03	1.604724E-04	0.0
82	C	0.0	0.0	-9.0726395E-03	-2.304167E-02	3.64474E-05	0.0
83	C	0.0	0.0	-7.051119E-03	-1.0747651E-03	-7.072294E-04	0.0
84	C	0.0	0.0	1.0154730E-03	-1.022452E-02	-5.513443E-05	0.0
85	C	0.0	0.0	-7.039410E-03	-1.309279F-02	2.000807E-03	0.0
86	C	0.0	0.0	-1.616444E-02	-3.649174E-03	3.222499E-03	0.0
87	C	0.0	0.0	-2.0343325E-02	-5.377075E-03	2.079823E-03	0.0
88	C	0.0	0.0	-1.0801539E-02	-4.334629E-03	-4.6729nac-05	0.0
89	C	0.0	0.0	-5.105434E-03	-2.478785E-02	-8.431085E-04	0.0
90	C	0.0	0.0	4.153937E-04	-1.287413E-05	0.0	0.0
91	C	0.0	0.0	3.0794951E-04	2.555554E-05	3.562883E-05	0.0
92	C	0.0	0.0	1.0823277E-05	5.766633E-05	4.523794E-05	0.0
93	C	0.0	0.0	9.812597E-05	7.076545E-05	3.967195E-05	0.0
94	C	0.0	0.0	-9.612259E-04	2.01449E-04	2.729324E-05	0.0
95	C	0.0	0.0	-3.534754E-04	1.324277E-04	8.792778E-05	0.0
96	C	0.0	0.0	1.991729E-04	6.9191655E-05	-0.273295E-05	0.0
97	C	0.0	0.0	6.7210294E-03	8.073539E-05	-5.00133E-04	0.0
98	C	0.0	0.0	2.709225E-03	7.238171E-04	-4.272615E-04	0.0
99	C	0.0	0.0	-4.071197E-03	8.578777F-04	-4.73078F-04	0.0
100	C	0.0	0.0	-9.03725E-03	9.449619E-04	-5.568257L-04	0.0
101	C	0.0	0.0	0.0	0.0	0.0	0.0
102	C	0.0	0.0	1.34	0.0	0.0	0.0
103	C	0.0	0.0	1.15	0.0	0.0	0.0
104	C	0.0	0.0	1.05	0.0	0.0	0.0
105	C	0.0	0.0	1.05	0.0	0.0	0.0
106	C	0.0	0.0	1.05	0.0	0.0	0.0
107	C	0.0	0.0	1.07	0.0	0.0	0.0
108	C	0.0	0.0	1.11	0.0	0.0	0.0
109	C	0.0	0.0	1.12	0.0	0.0	0.0
110	C	0.0	0.0	1.13	0.0	0.0	0.0

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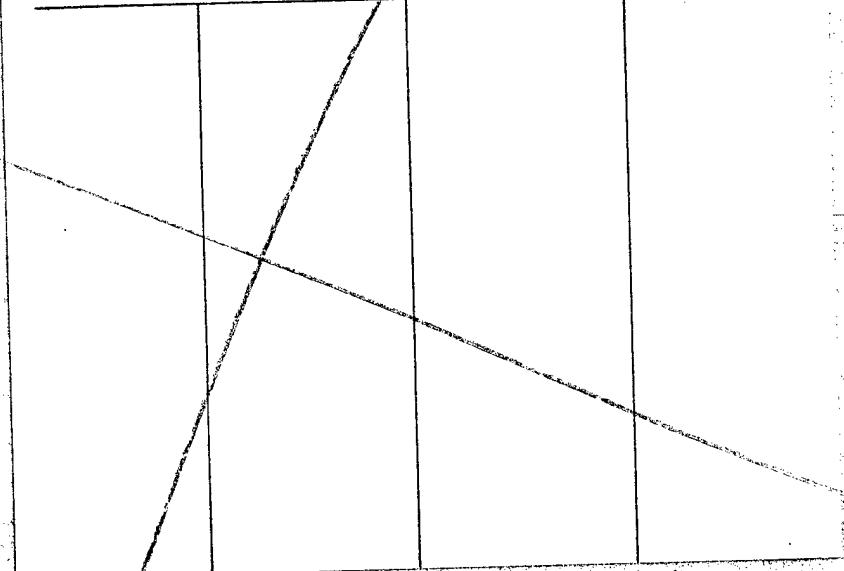
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